IDG .net

TATTLETALES

Microsoft is rewarding PC builders that snitch on users who order Windows-less boxes. Page 16



WHO'S THE BOSS?

MIT futurist Michael L. Dertouzos (left) calls for making computers serve humans, rather than the other way around. Page 60

UNDERHYPED

Users say one wireless service is twice as fast as promised. Page 8

COMPUTERWORLD

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TELECOMMUTING UNDER SCRUTINY

Health care privacy regs force policy review

BY JULEKHA DASH

To comply with government regulations, health care organizations aren't just overhauling their operations. They're also reviewing their telecommuting policies.

The privacy rules of the Health Insurance Portability and Accountability Act, with which health care organizations must comply by April 2003, states that unauthorized persons can't have access to private medical data. That has prompted several health organizations to review their telecommuting policies to prevent off-site privacy breaches.

"At work, you can make sure people don't enter a facility unless they're authorized, but at home, it's different," said Jim Hudack, CEO of UnitedHealth Group Inc.'s technologies division in Minnetonka, Minn.

Although Hudack doesn't think HIPAA will force UnitedHealth to ban telecommuting altogether, he said the company has to "be careful about what we let people work on at home."

Telecommuting, page 14

Under Wraps

Health care organizations can protect private information used by telecommuters by:

- **Improving security measures** for home devices, with encryption, PKI or biometric ID devices
- **Encouraging employees** to work in a separate home office, rather than in the living room or bedroom
- **Taking immediate disciplinary action** for privacy breaches

USERS HOLD BACK ON PLANS FOR .NET

Development platform focused on Web services still confuses customers

BY CAROL SLIWA
LOS ANGELES

Getting a firm grasp on the .Net initiative that Microsoft Corp. launched more than 10 months ago might be likened to catching a fish with one's bare hands. Even one of Microsoft's top executives, Jim Allchin, publicly acknowledged last week, "I know it's been confusing."

.NET ADOPTION

The result? Many IT professionals at last week's Gartner Inc. conference, Windows 2000 and Beyond, said they haven't been seriously thinking about or making plans for the .Net world that Microsoft has been promoting. Allchin spoke at the conference about his company's new Web service-focused development platform strategy.

"From a business perspective, I need justification, ROI, before I buy something different," said Joe Drozynski, an IT project manager at Capital Blue Cross in Harrisburg, Pa. ".Net is a vision, and I don't see it as something I can take to my CIO."

Calling .Net "total vaporware," a Windows NT project leader and manager at a Midwestern publishing firm said, "I know it's how they plan to bring everything together. It just sounds too huge to ever work."

"I think I'm as confused as everybody else is right now. [.Net] seems to be a moving target," said Dennis Lionberger, chief of architecture for Marin County, Calif. "Right now, it's not well defined enough to mean much to me. I'm not sure Microsoft is sure what it will

.Net Plans, page 16

ARIBA TO FOCUS ON 5 INDUSTRIES

Targets include auto, finance, new CEO says

BY MICHAEL MEEHAN AND LEE COPELAND GLADWIN
LAS VEGAS

Ariba Inc., sporting a fresh CEO after a bad quarter, announced at its annual user conference here last week that it will concentrate its development efforts in five vertical industries, even though some users in those fields have already chosen competing vendors.

The market-leading e-procurement software company has targeted financial services, automotive, pharmaceutical, high-tech and consumer packaged-goods firms. CEO Larry Mueller said he believes that customers' allegiance is up for grabs and that they will switch to technologies that can deliver a solid return on investment.

But customers were skeptical that Mountain View, Calif.-based Ariba could obtain the critical mass it seeks. The market for purveyors of online

Ariba, page 77

MANAGING THE VIRUS THREAT

THE NEED FOR UP-TO-DATE VIRUS protection is greater than ever, but it's a big headache to update the hodgepodge of antivirus software from multiple vendors on hundreds of machines. IT security managers say there's got to be a better way.

Story begins on page 66.



DAVID HOLLENBACH

PHILL BAKKER, senior security architect at eHealthDirect, wishes there were a "common console" for managing antivirus updates.

NEWSPAPER



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MARC BERLOW

THE NEW SECURITY PRO

The role of the security professional is evolving from a back-office support function to one that's strategically tied to the entire company. Chuck Ryan typifies the IT pro needed in this new role, combining business and communications skills with strong technology experience.
Page 69



JOHN NOLTNER

BALANCING ACTS

Long hours and frequent travel can be facts of life for IT consultants. But John Goodhue chose the independent consultant's lifestyle to gain control over his schedule and to spend quality time with his family.
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7 STANDARDS FOR structure and content of XML-based documents are approved by the World Wide Web Consortium.

7 A YELLOW PAGES-STYLE business-to-business directory is launched by major vendors, but few end users have signed on.

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'Tis the season to upsell? With a lot of IRS refund checks heading to consumers' accounts, this might be the time for banks to use customer relationship management to upsell, cross-sell and sell new products, according to Jim Goldfinger, a senior vice president and general manager at Boston-based Xchange Inc.'s Customer Value Management business unit, in our **E-Commerce Community**. *www.computerworld.com/ecommerce*



Could you conduct a self-assessment of your security capabilities? Sheri Horseman (right), a senior security analyst at Dayton, Ohio-based SafeCorp, walks you through the steps you need to take to audit your company's security measures in the **Security Community**. *www.computerworld.com/security*

For the latest news about security, as well as features, analyses, Web resources and discussion forums, head to our **Security Resource Center** at *www.computerworld.com/securitycenter*

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AT DEADLINE

XML Group to Create Voting System Specs

The Organization for the Advancement of Structured Information Standards (OASIS) announced last week that it has formed a committee to develop a specialized XML standard aimed at improving the accuracy and efficiency of elections. Billerica, Mass.-based OASIS said the new technical committee will work to develop an Election Markup Language (EML) based on XML technology. The EML proposal would include specifications for exchanging data between election and voter registration systems developed by different hardware, software and IT services vendors.

Congress Pushes For a Federal CIO

A bill introduced in the U.S. Senate last week would require the appointment of a federal CIO to oversee the government's $44 billion IT operation. Sponsored by Sens. Joe Lieberman (D-Conn.) and Conrad Burns (R-Mont.), the legislation has 10 co-sponsors. A similar push for a federal CIO is expected in the House of Representatives. The White House is planning to add federal CIO duties to the yet-to-be appointed deputy director of the Office of Management and Budget.

Short Takes

The U.S. DEPARTMENT OF COMMERCE said it's creating a privacy adviser position to monitor compliance with the data privacy policies posted on its Web sites. A spokesman said the adviser will be responsible for ensuring "that we're not dropping cookies or Web bugs or doing things that people might consider a violation of their privacy." . . . NETWORK ICE CORP., a San Mateo, Calif.-based maker of desktop intrusion-detection systems popular among home and small-office users, has agreed to be purchased by Atlanta-based security vendor INTERNET SECURITY SYSTEMS INC. (ISS) for 4.3 million shares of ISS stock and $300,000 to cover options. . . . Denver-based business applications vendor J.D. EDWARDS & CO. said 8% of its employees have been laid off as part of a "revitalization" effort.

Compaq Discontinues Large Unisys Server

Move raises questions about market for 32-processor Intel boxes, analysts say

BY JAIKUMAR VIJAYAN

COMPAQ Computer Corp.'s decision to stop reselling Unisys Corp.'s 32-processor ES7000 server, a month after Hewlett-Packard Co. said it was doing the same, raises questions about the commercial market's readiness for highly scalable Intel Corp. servers, analysts said.

But executives from Unisys insisted that there is a growing demand for such scalability in the Intel space and said they would continue to vigorously push the system, which the company is positioning as the most scalable server for Windows 2000 Datacenter.

"We are skating to where the puck is going," said Peter Samson, a general manger at Blue Bell, Pa.-based Unisys.

Launched last year, the ES7000 server is based on a proprietary Unisys technology called Cellular MultiProcessing (CMP) that, among other things, allows users to partition a single 32-processor Intel server into multiple, smaller boxes. Unisys has been positioning the Windows 2000 Datacenter servers as a cheaper and more powerful option to Unix servers for tasks such as server consolidation and database hosting.

Unisys has signed up companies such as Dell Computer Corp., Japan's Hitachi Ltd. and England's ICL, in addition to Compaq and HP, to resell the ES7000. Last week though, Compaq backed out of the agreement, saying it wanted to focus instead on selling its own eight-processor ProLiant servers, which account for 95% of high-end server sales, according to the company.

That statistic, combined with the softening economy, caused Compaq to re-evaluate its options, said Tim Golden a company spokesman.

A month ago HP also dropped its agreement with Unisys because comparable technology being developed internally at HP was coming along faster than expected, according to Gary Erickson, an HP product manager.

The defections by the two companies aren't very surprising, given the current softness in the economy and the lack of overall user readiness for technologies such as these, said Joyce Becknell an analyst at Aberdeen Group Inc in Boston.

"Not many people are ready to scale to 32-processor Intel servers just yet," Becknell said. For one thing, the Windows operating system and Windows-based applications are still relatively untested in large-scale enterprise environments, she said.

Another issue is that the concept of partitioning — a technique that's long been used in the mainframe and Unix worlds — is still new in the commercial Intel server space and may take more time to gain wider acceptance, said James Garden, an analyst at Technology Business Research Inc. in Hampton, N.H. As a result, most users are likely to first turn to four- and eight-way Intel servers before looking to larger boxes, Becknell said.

But some users who are already using the ES7000 say it offers a great platform for consolidating workloads from multiple smaller Intel servers.

"This architecture is exactly what I had in mind," for running core applications, said Ray Pedden, executive vice president at Health eConnex, a Park Ridge, Ill.-based application service provider for the health care market. The company uses a 16-processor ES7000 to run a core transaction processing application that would have otherwise required "a whole server farm to accomplish," he said.

The 60,000-student Santa Ana Unified School District in California has split a 16-processor ES7000 into two eight-processor halves — one for running student applications, the other for financial applications, said Paul Bewley, the district's director of IT. The applications were migrated off an older proprietary Unisys platform. "We wanted something that was bigger, faster and cheaper," Bewley said.

Linda Rosencrance contributed to this report.

Microsoft Warns of Windows 2000 Hole

BY SAM COSTELLO AND JENNIFER DISABATINO

Microsoft Corp. disclosed last week that an "extremely serious" flaw in an extension included in Windows 2000 could allow a malicious hacker to gain complete control of any computer running the Internet Information Services (IIS) 5.0 software built into that operating system.

The software vendor "strongly" urged all IIS 5.0 users to install a patch, available online (see chart), that's supposed to fix the problem. There are no reports that the flaw has been exploited yet.

Scott Culp, a program manager at Microsoft's security response center, said it's "imperative" that anyone running IIS 5.0 apply the patch. The hole is especially serious because it could enable an attacker to run code that would give him complete control of Windows 2000 on a vulnerable server.

"There is literally nothing [an attacker] could not do," Culp said.

Microsoft said the vulnerability is caused by an unchecked buffer in an extension that provides native support for Internet printing capabilities within Windows 2000.

Culp said the hole will affect only those users who have explicitly turned on IIS 5.0 and the Internet Printing Protocol feature offered as part of Windows 2000. The problematic extension that implements the protocol is installed by default on all Windows 2000-based servers, but it can be accessed only via IIS 5.0.

The hole was first reported to Microsoft 10 days ago by eEye Digital Security, an Aliso Viejo, Calif.-based security software vendor that has posted its own advisory about the vulnerability.

According to that advisory, a filter on Microsoft's Internet Server application programming interface extension that controls the Internet printing commands "does not do proper 'bounds checking' on user-inputted buffers." That makes the server susceptible to buffer overflow attacks that could give hackers the keys they need to gain system-level access to servers.

Once that's accomplished, Maiffret said, an attacker could view all of the files on a penetrated server and execute any command.

While the hole itself is somewhat obscure, security analysts said ways to exploit it are sure to be developed and shared among would-be attackers. Marc Maiffret, chief hacking officer at eEye, said it is posting "a proof-of-concept exploit that can't be used maliciously."

As a result, systems administrators need to act quickly to ensure that their corporate servers don't get attacked, Maiffret said.

"As soon as somebody learns about [the hole], they need to install the patch," he advised. "They shouldn't wait an hour or a day."

Microsoft has posted 18 security bulletins for IIS 5.0 since January of last year.

Costello is a reporter for the IDG News Service.

Fixing the Flaw

WHO WILL BE AFFECTED

Users who have explicitly turned on IIS 5.0 and the Internet Printing Protocol feature offered as part of Windows 2000

WHAT TO DO

Act quickly. All IIS 5.0 users are advised to install a new patch Microsoft has made available. Go to **www.microsoft.com/technet/security/bulletin/MS01023.asp**

Web Group Adopts Specification for XML Definitions

Aims to broaden, unify data interchange

BY STEPHEN LAWSON
HONG KONG

The World Wide Web Consortium last week announced at a conference that it had formally approved a recommended specification for defining the structure and content of XML-based business documents.

The decision means that consortium members have reviewed the XML Schema specification and deemed it stable.

The specification defines how programmers should describe data types and documents based on XML technology, which can put identifying tags on any piece of content on the Web. Potential corporate uses include business-to-business transactions that involve multiple systems such as purchase orders and invoices.

In the absence of a standard, various technology vendors and vertical industry groups have devised their own Document Type Definitions (DTD) for exchanging XML-based business data. The XML Schema specification is intended to replace those DTDs.

Attendees at the 10th International World Wide Web Consortium conference here applauded the approval.

Amit Singal, a senior research scientist at Web search engine developer Google Inc. in Mountain View, Calif., said the new specification should help rein in the multiple ways of defining XML content and make the definitions used by firms more consistent. "It's going to make all kinds of data interchange possible that's not possible today," Singal said.

The specification "is just way more powerful" than a DTD, said Stefan Edlund, a software designer at IBM's Almaden Research Center in San Jose. "It allows you to be more expressive in the way you describe your documents."

But another attendee cautioned that the approval is only one step in the process of putting the specification into actual usage.

"It's a milestone, yes, but [the XML Schema] is still going to have a lot of flux," said Soumen Chakrabarti, an assistant professor in the computer science and engineering department at the Indian Institute of Technology in Mumbai, India. ◗

Lawson writes for the IDG News Service.

IBM, Microsoft Launch B2B Directory; Response Slow

Even some founding members have yet to register Web services

BY LEE COPELAND GLADWIN

IBM and Microsoft Corp. haven't yet been able to drum up much end-user interest in the Yellow Pages-style directory they launched last week, and that's critical to the success of both vendors' technology road map.

Only a dozen or so user firms are among the group of about 260 companies, mostly vendors, that have publicly pledged to register services in the Universal Description, Discovery and Integration (UDDI) directory. And those few end-user supporters aren't on the same page regarding the directory's value.

"We haven't decided whether we'll publish our Web services," said Patrick Gutmann, business-to-business e-commerce officer at ABN Amro Bank, a division of ABN Amro Holding NV. Gutmann said the $44 billion Amsterdam-based financial services company hasn't yet defined how it will use the directory, but he joined the UDDI community to get in on the ground floor in setting standards and shaping the registry.

Wayzata, Minn.-based Cargill Inc., a $47 billion agricultural giant, and New York-based American Express Co., a $24 billion credit kingpin, are both among the founding members of UDDI. But neither firm would discuss its plans to use the directory, nor have they registered services.

Ted Schadler, an analyst at Forrester Research Inc. in Cambridge, Mass., said there's still time for IBM and Microsoft to drum up end-user support for UDDI.

"UDDI is not a must-do or die in 2001," said Schadler. "Companies need to look at this because it's the most cost-effective way to make applications and services available over the Web, and there will be tremendous tools and infrastructure support from the vendors."

Smaller end-user companies also voiced skepticism about the necessity of sharing information about Web services in a public directory.

"If we design a Web service, it's nothing that we're going to want to open up and allow our competitors to get a hold of," said Rob Kogan, vice president of MIS at Nautilus Insurance Co., a general liability and property insurance firm in Scottsdale, Ariz. "We're very closed about our technology and will be in the future because technology is a key differentiator in our market segment."

Publishing Web services in UDDI makes sense for only the biggest companies that dominate their marketplaces, said Jim Miller, chief technology officer at Creditex, a New York-based seller of derivatives to large investment banks, such as J.P. Morgan Chase & Co. and Credit Suisse First Boston.

"Comparatively, we're a small fish," Miller said. "The big fish will say, 'Here's the defined service. If you want to play with us, you have to match up.'"

But the outlook for UDDI is by no means bleak.

The Boeing Co., for example, also plans to support UDDI, though the Seattle-based aerospace firm hasn't determined what services to publish. ◗

The Terminology

UDDI: A Web-based B2B directory where companies can list contact information, descriptions and unique identifiers for the Web services they offer.

Simple Object Access Protocol: A protocol that allows remote procedure calls and Web services to ferry past firewalls using HTTP as its transport mechanism.

XML: A standard used to describe the data that gets transmitted in Web services.

ebXML: A standard that sets the terms and conditions for the use of e-business services.

Win 2002 Name Game Confuses

Microsoft exec hints at change for server OS

BY CAROL SLIWA

Microsoft Corp. last week dubbed its upcoming server operating system Windows 2002 — and, in doing so, appeared to admit that the product won't meet its originally targeted 2001 release date.

Or did it?

Speaking at a Windows conference sponsored by Stamford, Conn.-based Gartner Inc., Microsoft group vice president Jim Allchin hinted that the name isn't set in stone.

Asked about the Windows 2002 name, Allchin laughed and said, "We have a little work to do on naming. Let me just stop there."

He said there would be another meeting on the naming issue. "The fat lady hasn't sung yet," he said, noting that the client version of the upcoming operating system, formerly code-named Whistler, will definitely remain Windows XP.

"I wouldn't be surprised if the name changes again," said Gartner analyst David Smith. "If [Allchin] has anything to say about it, it sounds like it's going to be something else."

The Windows XP client is due to be released to manufacturing in July, with the server operating system to follow in three to six months, company officials have said.

Microsoft group product manager Bob O'Brien said there's a "high probability that we're going to miss" the originally stated 2001 release date for the server operating system. "January is not improbable" for its release to manufacturing, he said.

Once a product is released to manufacturing, it takes about eight weeks "in the best scenario" to work its way into the retail channels, O'Brien said.

That means that the Windows 2002 server version may not reach customers until March, O'Brien said.

"In all honesty, we thought we were doing the right thing," naming the product Windows 2002, O'Brien said. "It was going to be close to the end of the year."

O'Brien said his company is cognizant of the fact that, as the product release pushes close to the first quarter, "that's when IT does their budget planning."

"If we're going to be in the enterprise, we have to understand that's what customers face," O'Brien said.

Analysts, however, have said a month or two delay for the server operating system shouldn't affect corporate customers too adversely, since most are still dealing with upgrades to the previous Windows 2000 operating system. ◗

MOREONLINE

For more Windows coverage, go to our Operating Systems Community at www.computerworld.com/community

Trucker McLane Rolls Out Wireless Vehicle System

Allows paperless invoicing, delivery

BY BOB BREWIN

MCLANE CO. has unveiled plans to install mobile computers with satellite and wireless communications systems in 1,050 trucks in its grocery-store delivery fleet, transforming the vehicles into mobile information centers tied into the company's back-end systems.

Dave Dillon, manager of transportation at Temple, Texas-based McLane, said the project, announced last week, will cost between $10 million and $20 million, with a payback on investment expected within two years.

Dillon said the mobile communications system, developed by Symbol Technologies Inc. in Holtsville, N.Y., provides "exponentially greater functionality" than the wireless package-tracking systems typically used by delivery companies.

The McLane system, built around an onboard communications terminal and a rugged Symbol handheld computer running Palm OS, will provide the company with a paperless process that manages all invoicing and delivery transactions, including capturing electronic signatures for proof of delivery, Dillon said. The system will also manage dispatch operations, automate driver logs and give McLane the ability to perform remote diagnostics on the vehicles via satellite.

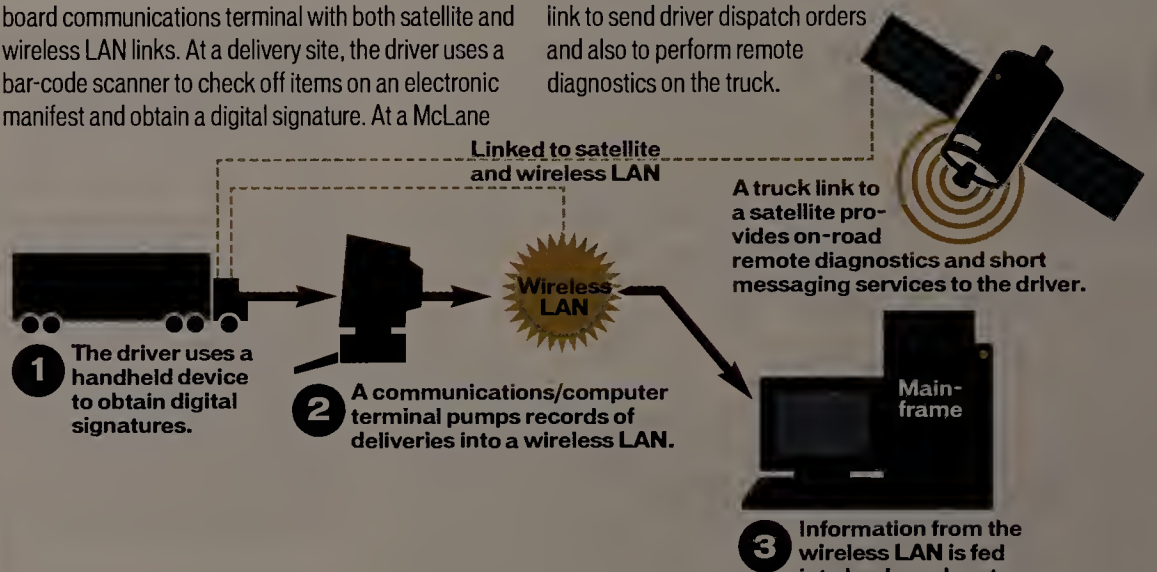
Drivers will use the Symbol handheld to record delivery information with a bar-code scanner and to capture electronic signatures using Track & Trace point-of-delivery software from IBM. When the driver returns to one of the 17 McLane terminals Symbol has equipped with a wireless LAN infrastructure, the onboard communications system senses the 11M bit/sec. wireless LAN and automatically starts dumping data that has been stored throughout the day, Dillon said.

Bob Egan, an analyst at Gartner Inc. in Stamford, Conn., said the use of satellite-based information systems is well-established in the trucking industry.

"[But] what's emerging in a big way is the use of multiple wireless techniques to address specific business requirements," Egan said. "We will continue to see wireless LAN adoption explode in many sectors of the [transportation] market, because unlike wide-area terrestrial wireless and satellites, wireless LANs can deliver higher speed and support greater capacity demands where needed."

Wireless LAN Hits the Road

The cab of a McLane truck is equipped with an onboard communications terminal with both satellite and wireless LAN links. At a delivery site, the driver uses a bar-code scanner to check off items on an electronic manifest and obtain a digital signature. At a McLane terminal, the wireless LAN connection dumps records from the day's deliveries into the terminal's wireless LAN, which then feeds the information into back-end systems. McLane uses a satellite link to send driver dispatch orders and also to perform remote diagnostics on the truck.



Ricochet Wireless Faster Than Advertised

But availability is limited, say users

BY BOB BREWIN

In an era of endless techno-hype, the high-speed Ricochet mobile wireless service from Metricom Inc. stands out for delivering more than it promises, according to users. But those same users are frustrated because its availability is limited to only 15 U.S. markets.

San Jose-based Metricom promises a connection speed of 128K bit/sec. in all but two of its markets — Seattle and metropolitan Washington, the company's original service areas. Those two markets, offering 28.8K bit/sec., have upgrades planned, but those have yet to be scheduled.

However, users in the other areas told *Computerworld* last week that they routinely connect at about twice the promised 128K bit/sec. data rate.

Ed Lynch, assistant vice president for network telecommunications and desktop services at Credit Lyonnais Securities USA Inc. in New York, said average connection speeds in the center of the city run at 460K bit/sec., though speeds tend to drop off in the outer boroughs.

Credit Lyonnais has purchased 50 Ricochet modems for its IT staff, which uses the service to connect to the company's virtual private network (VPN) while on the road. Lynch said he isn't concerned about the security implications associated with a wireless connection to the company's systems. Using a VPN means "this is a fully encrypted service," he said. "Someone would have to go to a lot of time and expense to capture this [data]."

Lynch said he has only two complaints about the service: its limited geographical reach and its cost. He said he considers the small national footprint of the service a serious limitation that inhibits rollout to other parts of the bank, and he calls the fee of $59 per month, per user "a little high." Credit Lyonnais receives a volume discount from what is actually a $79-per-month individual subscriber fee for unlimited airtime.

Alan Foster, vice president for government and community affairs at Sanyo North America Corp. in San Diego, said he routinely connects to Ricochet at anywhere from 248K to 260K bit/sec. from his office close to the Mexican border, as well as from his home in Scripps Ranch in the north of the vast county of San Diego. He said his connection speed has peaked at 460K bit/sec.

"This is better than DSL," he said, referring to the Digital Subscriber Line service available from phone companies.

Foster said he has evaluated Ricochet for companywide deployment, but he noted that it's difficult to push the service because of its lack of a nationwide infrastructure. Like Lynch, Foster said he finds the monthly fee rather steep.

Roger Hodge, owner of Hodge Printing Co. in Dallas, said he considers the Ricochet service a bargain, since he uses it in fixed mode in lieu of a DSL line, which he estimated would cost him about $150 per month.

AT A GLANCE

Fast but Pricey

Ricochet offers the following:

- **Service for $79 per month for unlimited airtime and volume discounts to $59 per month for enterprises with more than 20 accounts**
- **An external USB modem for $99; an internal PCMCIA modem for$299**
- **128K bit/sec. service in Atlanta, Baltimore, Dallas/Fort Worth, Denver, Detroit, Houston, Los Angeles, Minneapolis/St. Paul, New York, Philadelphia, Phoenix, San Diego and San Francisco; 28.8K bit/sec. service in Seattle and Washington**

Hodge said he gets average connection speeds of 225K bit/sec. He said he finds Metricom's approach refreshing compared with that of cell phone carriers, which have hyped next-generation service at speeds of 144K bit/sec. but say average speeds will be in the 50K to 70K bit/sec. range.

Metricom "underpromises and overdelivers," Hodge said, "while the cell companies are doing the opposite."

John Cornwell, vice president of business development at Metricom, said that while the company is well aware that its customers routinely experience higher speeds, it plans to stick with promoting and guaranteeing the 128K bit/sec. speed.

Cornwell said not only can Metricom deliver 128K bit/sec. today, but it can also continue to do so in the future as it adds customers and increases the load on the network.

According to Metricom, that's because it uses a patented "mesh" network architecture that preserves throughput when users are added.



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BRIEFS

Dell Recalls Batteries

The U.S. Consumer Product Safety Commission said Dell Computer Corp. is voluntarily recalling 284,000 batteries used in its Inspiron line of laptop computers because they can overcharge, become very hot, release smoke and possibly catch fire. Dell said it has received one report of a battery that overcharged, resulting in minor property damage but no injuries. The batteries covered by the recall are used in Dell Inspiron 5000 and 5000e notebook computers.

Starbucks on the LAN

Seattle-based Starbucks Coffee Co. last week said it has selected Compaq Computer Corp. as the main hardware supplier for its project to deliver high-speed wireless LAN access to store customers. Under a five-year agreement, Compaq will provide iPaq handheld computers that Starbucks customers will be able to use by early next year to access broadband content and services from more than 70% of the company's stores worldwide.

E-Retailers Struggling

A survey of 550 North American retailers doing business on the Web shows that companies with established mail-order catalog businesses are virtually the only ones making profits online. The least successful online retailers are those that have a Web-only presence, said Peter Stranger, a vice president at The Boston Consulting Group Inc. (BCG). BCG released the latest quarterly survey last week with Washington-based Shop.org, an association of online retailers.

Air Force Blasts Patch

Two researchers at the U.S. Air Force Academy Computer Science Department have published a paper criticizing security measures implemented in a patch for Microsoft's Outlook 2000 e-mail client. The paper, "Reinforcing Dialog-based Security," is slated to be presented at a conference at West Point next month. It claims that the patch issued in the aftermath of the "I Love You" virus attack last year doesn't adequately protect users. Microsoft has disputed the claim.

IP Telephony to Take Center Stage at Networld+Interop

Cisco and Nortel among vendors to show latest technology to users and prospects

BY JAMES COPE

As network equipment buyers and vendors gather this week at the Networld+Interop (N+I) conference, both camps will have a special type of convergence on their minds: sending voice and data as IP packets over a single network.

Networking juggernauts Cisco Systems Inc. and Brampton, Ontario-based Nortel Networks Corp. are targeting corporate users with the products they will put on display at the Las Vegas event. Meanwhile, competitor 3Com Corp. in Santa Clara, Calif., has already successfully bagged many small and midsize operations with offerings it will tout at the show.

IP telephone technology will also be in the minds of showgoers representing organizations that have already rolled out such systems, including such prominent companies as Merrill Lynch & Co., Datek Online Brokerage Services LLC, and The Dow Chemical Co., as well as educational institutions such as the University of Arkansas at Pine Bluff and Lakehead University in Thunder Bay, Ontario.

Jumping the Gun

Cisco couldn't wait for N+I to release new product information and last week announced a system that would put a subset of its Call Manager software on its routers or switches at branch offices, eliminating the need for a Call Manager server at each site.

Capt. Chris DiNofrio, a U.S. Marine Corps data systems officer in New Orleans, said the Cisco feature could save some serious money. He's rolling out a Cisco IP phone system that will connect 180 Marine Corps Reserve centers across the country. "I don't want to put a [Cisco Call Manager] server that costs $15,000 at each site," DiNofrio said.

Nortel officials were mum about the IP telephony announcements they plan to make at N+I. But in response to Cisco's announcement, a Nortel spokesman countered that the voice-over-IP features Cisco is introducing, such as unified messaging, are already built into Nortel's existing IP telephone system.

Larry Hettick, vice president of consulting at Telechoice Inc. in Tulsa, Okla., said, "Nortel has IP-enabled their existing PBX [private branch exchange] system." He noted that corporate users that already have a Nortel PBX may find this a good way to implement an IP phone system.

Lakehead University is installing a Nortel IP phone system. The university's president, Fred Gilbert, said, "Using the existing Category 5 Ethernet cable to send voice as data is a very cost-efficient way [to deploy a phone system] for this campus."

Rolando Garcia, chief network architect at Datek Online, said his company installed 350 Cisco IP phones a little more than two months ago and plans to install another 1,000 IP phones by the end of June. ◗

Citigroup Extends Payment System to MSN Customers

BY LUCAS MEARIAN

Citigroup Inc. signed a deal last week to provide its person-to-person payment system, dubbed c2it, to subscribers of Microsoft Corp.'s MSN Internet service. But analysts say such ventures rarely turn a profit and aren't garnering a critical mass of users.

Citigroup's agreement with Microsoft will open the payment service to MSN users, allowing them to send and receive cash via e-mail.

The New York-based financial services provider said the agreement with Microsoft is part of a strategy to reach new audiences through "target-focused partnerships" with online brand-name companies.

In October, Citigroup agreed to offer its online-payment system to America Online Inc.'s 26 million subscribers.

The person-to-person payment system works via an e-mail service that allows users to send messages instructing banks to transfer money from their accounts, such as a credit card or debit card account, to another person's or institution's account. Recipients of the money are notified via e-mail that money is waiting for them, and they can obtain it through an electronic account or a paper check.

Citigroup announced that it's doing away with a fee of $2 per transaction for its electronic-payment service. The service is free of charge for the first three months in which a member is signed up; thereafter, there is a minimum fee of 50 cents per transaction, up to a maximum of 2.2% of the amount of the transaction. The fee depends on the type of transaction — whether it's a transfer from a savings account, a transfer from a checking account or a credit card payment, for example — and on the type of credit card used.

Ken Kerr, a payment systems analyst at Gartner Inc. in Stamford, Conn., said the introduction of the service on MSN is insignificant to the marketplace because e-mail payment systems have yet to gain mass popularity or return profits. But Citigroup's lower pricing, he said, is strategically smart because it shows that the financial services firm recognizes that the value in online payment systems lies in its "sticky factor," or the ability to keep customers around by offering added services.

"There just isn't a lot of money to be made in parents sending money to kids at school," Kerr said. "I think it's an attempt to create a live transaction mechanism, with some realistic hope that someone will use it."

Chris Jolley, director of marketing for MoneyCentral, the MSN Web page on which the c2it service is located, said the service will bring Microsoft additional advertising from "very targeted placement and sponsorship."

Jolley also disagreed with analysts' predictions of slow adoption, noting that online payment technology is still in its infancy. "We believe ... there is incredible potential for it in the everyday financial activity arena," he said.

Other electronic services include Palo Alto, Calif.-based X.com Corp.'s PayPal, a service that's popular with online auction users and small online businesses, and Columbus, Ohio-based Bank One Corp.'s eMoneyMail.

Wells Fargo & Co. and eBay Inc. recently announced a similar agreement to offer Billpoint Inc.'s payment service. ◗

AT A GLANCE

More Coming

Other upcoming enhancements of Citigroup's online payment system include the following:

- The ability for U.S. residents to send money from their desktops to recipients in 30 countries, scheduled for mid-May
- An account-based card, scheduled for the third quarter
- Expanded international use of the service, planned for the end of the year
- A line of credit linked to the account-based card, also planned for year's end

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Antitrust Nominee Shows Poker Face on Microsoft Case

Says high-tech antitrust 'one of the top priorities' but avoids discussion of case

BY PATRICK THIBODEAU
WASHINGTON

THE PERSON who's expected to become the head of the U.S. Justice Department's antitrust division, attorney Charles James, said at his confirmation hearing last week that the high-tech industry should be as competitive as any other and that the role of antitrust law is to ensure such competition.

Speaking before the Senate Judiciary Committee, James gave no indication of whether the Bush administration would shift course on the Microsoft lawsuit, arguably one of the most important antitrust cases of the past 100 years.

In the case, U.S. District Court Judge Thomas Penfield Jackson sided with the Justice Department and the states and ruled that Microsoft Corp. had engaged in anticompetitive business practices and abused its monopoly power in the desktop operating systems market. Microsoft appealed the ruling to the U.S. Court of Appeals. The court's decision could come at any time.

Once the appeals court rules on Microsoft, the Bush administration will have to decide its next course of action: seek a new round of settlement talks or continue the legal battle to the U.S. Supreme Court.

The only insight James offered on the future of Microsoft and other pending antitrust cases was that the department will "look as closely as possible to preserving victories and rectifying defeats." James was an antitrust official in the Justice Department during the administration of the elder George Bush.

Committee Chairman Orrin G. Hatch (R-Utah), who has repeatedly expressed concern about Microsoft's power, didn't ask James about the Microsoft case directly.

"Do you think monopoly power is more likely to occur in high-tech industries than in other industries? If so, what are the implications of your conclusion for antitrust enforcement?" Hatch asked.

In response, James said that the issue was "one of the top priorities" for the antitrust division. The company that's first to market with a product "may have a prevailing market position for some period of time," James said, and the Justice Department didn't want to "discourage" innovation.

The rapid pace of change has to be considered in evaluating high-tech industries, he said. "However, I think that these industries need to be competitive just like other industries, so there is a continuing role for antitrust," he added.

Sen. Patrick Leahy (D-Vt.) questioned whether James, who has represented clients against government antitrust enforcement actions, will be able to do a "180-degree turn now and enforce antitrust laws."



JAMES: The division will work at "preserving victories and rectifying defeats."

James said that he plans to avoid "ethical complications" or the appearance of such, adding that he will do whatever the Justice Department's ethics staff tells him to do, "without question." James is a partner in the Washington office of Jones, Day, Reavis & Pogue. ◗

FTC Official Faults Corporate Privacy Policies

But businesses say feds are partly to blame

BY PATRICK THIBODEAU
ARLINGTON, VA.

Many corporate privacy policies are too hard to find, too long and too confusing, according to U.S. Federal Trade Commissioner Sheila Anthony, who said she believes companies need to standardize their policies in much the same way that food companies use nutrition labels that make it easy for consumers to count calories.

"In short, many privacy policies are beginning to look like complex legal documents that do not give consumers real choice," said Anthony.

Among the trends Anthony cited at the first annual Privacy and Data Protection Summit was a tendency among some companies to establish privacy policies that grant them sweeping rights to sell and transfer customer data.

But some corporate officials at the Privacy Officers Association-sponsored conference here said the federal government should shoulder at least some of the blame for complex privacy polices. Executives at financial services firms, for instance, say that to comply with the privacy provision of the Gramm-Leach-Bliley Act, the financial modernization law approved in 1999 and taking effect July 1, company privacy policies must include legal language from that act as well as from state laws affecting privacy.

Citigroup Inc. in New York has addressed that problem by creating two versions of the privacy policy it sends to consumers. One version is structured to meet the requirements of the law, but a second version outlines the company's privacy policy in 10 concise points. Customers tend to prefer the latter version, said Stephen Durkee, Citigroup's privacy implementation officer.

The feedback Citigroup has received from customers is that "this sounds like it really came from you, and not from your lawyers," Durkee said.

Harriet Pearson, IBM's chief privacy officer, agreed with Anthony. "We need to work toward making [privacy policies] simpler," she said, but added that it's an evolving process. Just a few years ago, many companies lacked privacy policies, she said, pointing to industry initiatives to improve upon those policies.

There are limits to what the Federal Trade Commission (FTC) can do to make companies improve, said Anthony. "I believe the lack of comprehensive federal privacy legislation to protect consumer privacy has created a schizophrenic environment that is bound to get worse," she added.

More than 450 privacy-related bills have been introduced in state legislatures within the past few years. That raises the possibility that businesses will have to comply with a patchwork of laws, which would be an "untenable situation," said Anthony. Moreover, it's expected that the European Union will begin enforcing its data protection laws next summer, giving European residents greater privacy protection than U.S. citizens have, she said.

Congress is considering nearly 50 privacy bills, but it appears unlikely that any privacy legislation will be passed this year. "It may well take a push from the administration to get something out," said Joel Winston, an acting associate director at the FTC. ◗

Upcoming Hurdles

▸**The Gramm-Leach-Bliley Act** takes effect July 1. Financial institutions must provide annual privacy notices and give customers the right to opt out of sharing information with nonaffiliated third parties.

▸**The European Union** may begin enforcing its data privacy protection laws July 1. It's been holding off to give U.S. companies a chance to sign up for safe harbor protection. Fewer than 50 U.S. firms have done so.

Users Anticipate Integrated Lawson/Siebel Applications

BY MARC L. SONGINI

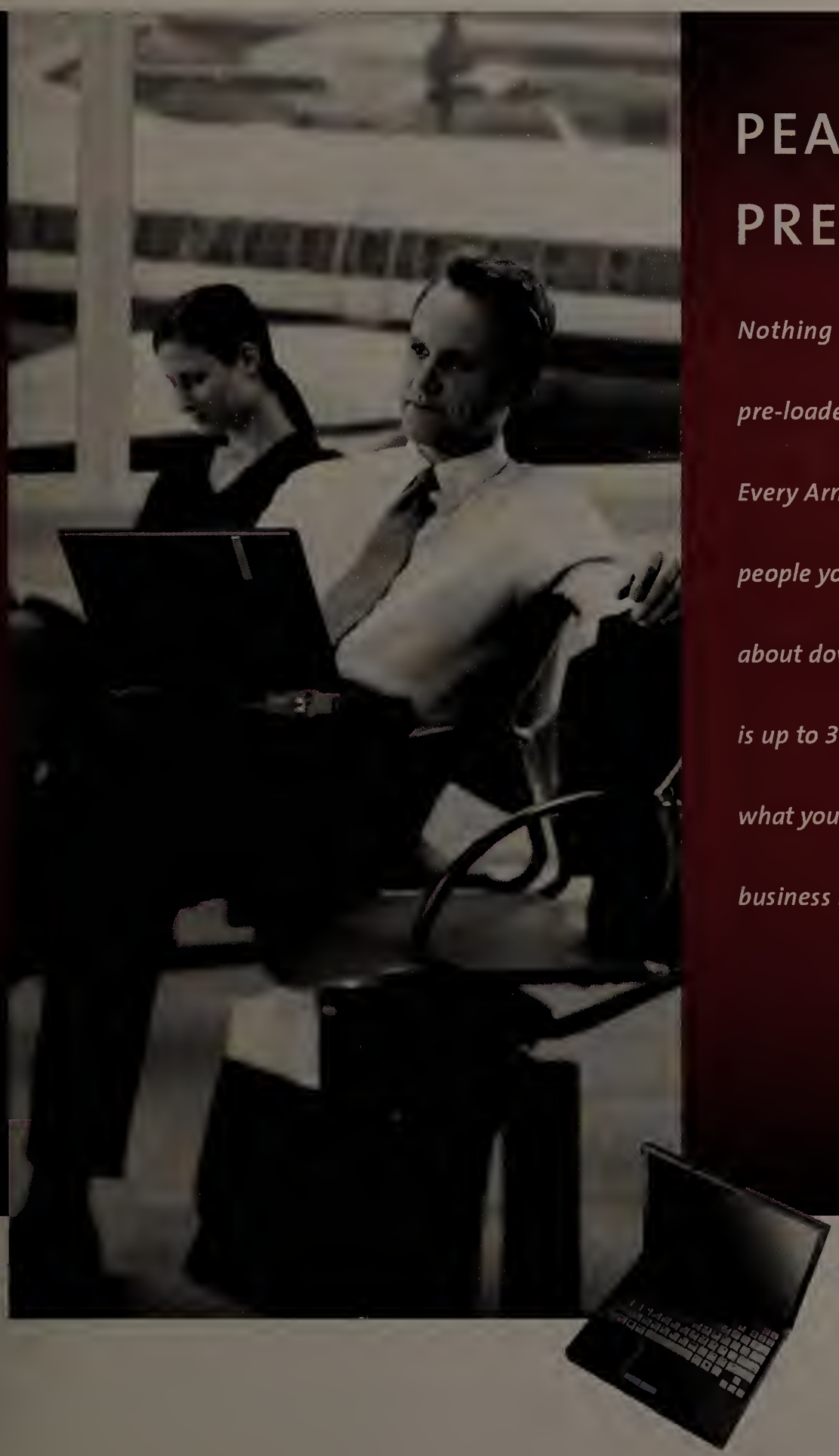
Lawson Software will unveil Insight 8.02, its next generation of e-business and process-improvement applications, at its annual user conference in Anaheim, Calif., today. The St. Paul, Minn.-based company says the new software will automate service industry e-business processes.

Users will most likely be eager to learn about the integration of San Mateo, Calif.-based Siebel Systems Inc.'s customer relationship management applications with Lawson's enterprise resource planning suite and whether they will need expensive middleware "to glue them together," said Catherine Jones, an analyst at Aberdeen Group Inc. in Boston. The companies announced their integration deal last year.

In the slowing economy, users will also be interested in the business analysis functions Lawson has been adding to its software to help companies optimize processes, she said.

Dennis Miller, CIO at Memorial Healthcare System, a public hospital in Hollywood, Fla., said he wants to learn more about the migration path from the Lawson.insight 7 Series to the Lawson.insight 8 Series. The application suite is Web-enabled and doesn't require special desktop software. ◗

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BRIEFS

Microsoft Snaps Up NCompass Labs

In a move aimed at furthering its .Net Internet initiative, Microsoft Corp. last week said it has agreed to acquire NCompass Labs Inc., which makes software for creating and managing Web content. Terms of the deal weren't disclosed. Microsoft will rebrand San Jose-based NCompass' Resolution 4.0 as Microsoft Content Management Server 2000, with release scheduled for late in the third quarter or early in the fourth. Customers who buy the product in the interim will continue to receive support and product upgrades from Microsoft, the company said.

FBI: Lucent Scientists Sold Secrets to China

The FBI last week charged two Chinese nationals who were working at Lucent Technologies Inc. and a third man with stealing source code and software and giving the trade secrets to a Chinese state-owned company in an effort to develop the "Cisco of China." A Lucent spokeswoman declined to provide specifics of what was stolen or its value. The Murray Hill, N.J.-based company has a comprehensive system to protect its intellectual property, and that system worked, she said.

Short Takes

Software vendor TURBOLINUX INC. in Brisbane, Calif., and technical services firm LINUXCARE INC. in San Francisco have called off a planned merger because of the softening economy and "various financial aspects . . . that couldn't be agreed upon," according to Linuxcare CEO Arthur Tyde III . . . ABBEY NATIONAL PLC, a London-based provider of retail mortgages and personal loans, signed a $390 million, 10-year services agreement with ELECTRONIC DATA SYSTEMS CORP. in Plano, Texas. EDS will provide IT operations management and develop new IT platforms for a joint venture owned by both companies. . . . In response to a petition by Seattle-based supercomputer maker CRAY INC., the U.S. DEPARTMENT OF COMMERCE has revoked the antidumping tariffs on certain vector supercomputers from Japan that have been in place since 1997.

Beware of Predatory HIPAA Consultants

As health care regs loom, self-proclaimed experts peddle questionable services

BY JULEKHA DASH

As THE health care industry prepares for complex regulations that will affect most of its systems and business processes, IT managers advise taking cautious steps to avoid being exploited by consultants.

The Health Insurance Portability and Accountability Act (HIPAA) presents a lucrative opportunity for so-called experts, since noncompliance by health care officials can result in stiff fines and even jail time. The regulations define standards for electronic transactions, as well as measures for protecting the security and privacy of patient information (see related article, page 44).

In addition, certain aspects of HIPAA remain unclear, making it easy for health care providers to sign up for services they might not need.

In a given week, Ronald Margolis, CIO at the University of New Mexico Hospitals, receives 15 to 50 phone calls from HIPAA consultants. With the exception of consultants who work for its health information systems vendors, the Albuquerque-based hospital chain hasn't used any consultants because it's still too early, Margolis said.

Some consultants have tried clever marketing tricks, such as asking Margolis to participate in surveys that they use to gauge the kind of services his organization will need. In other instances, companies are giving away gadgets such as PalmPilots to people who respond to mailings that are really "leads to a sales call," Margolis said.

Indeed, HIPAA has "certainly got [consultants] in a feeding frenzy," said Greg Walton, vice president and CIO at Carilion Health System in Roanoke, Va. "It's really the obligation of the buyer to figure out what they want from a consultant, [or] the consultant is going to run all over them."

Carilion is "40% done with HIPAA," so Walton doesn't anticipate using any consultants himself. But he cautions against working with consultants who don't have experience in health care, because you may have to spend a lot of time explaining the context to them.

In fact, clients should make sure that a consultant has experience with their specific type of health care organization, whether it's an insurance company, a hospital or a clinic, said Mike Thorsen, executive vice president and chief financial officer at the Rx2000 Institute, a Minneapolis-based nonprofit organization that educates health care firms about business and technology issues.

For instance, a consultant who has primarily worked with insurers wouldn't be well suited for a clinic or hospital, because the environments are completely different, he said.

"HIPAA is much more comprehensive than Y2k," said Thorsen. With Y2k, "a lot of people were able to get away with just fixing IT," he said. With HIPAA, 70% of the work will require adjustment of policies and procedures, he explained. That includes things such as hiring a chief privacy officer and enforcing discipline for staff who violate patient privacy rules.

In addition, users should consult an attorney prior to hiring a consultant, said Thorsen. There are instances where "state regulations may supercede HIPAA," he said.

Health care executives ought to assess their organization's needs by performing a "gap analysis," which is a study that compares a firm's current HIPAA readiness against what's needed to comply with the new rules, said Joyce Sensmeier, director of professional services at the Healthcare Information and Management Systems Society in Chicago. Otherwise, "it's too easy for consultants to make the project bigger than it needs to be," she said.

By carefully defining an organization's needs, managers can avoid cost overruns and open-ended engagements, said Scott Cebula, vice president of information systems at MemorialCare in Long Beach, Calif. Memorial Care is creating an action plan to prepare for HIPAA and is awaiting further guidelines from the federal government before it retains any consultants, he said. ◗

Assess Your Needs

Some tips for managing relationships with HIPAA consultants:

- **Perform** a "gap analysis" to identify organizational needs.
- **Avoid** open-ended engagements.
- **Make sure** you understand your legal obligations before hiring a consultant.
- **Choose** a consultant who has worked in health care for an organization similar to yours.

Continued from page 1

Telecommuting

For instance, if an employee was telecommuting and his son walked into the room and saw confidential patient information, that would violate the privacy rule.

Health care organizations also need to consider whether telecommuters are downloading patient information from the network and storing it on their home computer hard drives, said James Harvey, an attorney at Alston & Bird LLP in Atlanta who specializes in privacy issues. If so, organizations need to extend security rules to home computers, he said.

"It's much easier to address security issues in a centralized mainframe environment than on a distributed basis," he said.

HIPAA includes measures for both the security and privacy of patient information. Penalties for breaches include severe fines and possible jail time. To avoid these consequences, many health care organizations said they will ramp up security measures to protect applications on home devices, such as using virtual private networks, encryption or public-key infrastructure.

To comply with the final HIPAA security rules, health care managers will have to authenticate who is accessing the data, said Patrick Grotton, CIO at Mercy Hospital in Portland, Maine.

Grotton said he's considering using a biometric device, such as an eye or fingerprint scanner, combined with various layers of password protection to ensure that unauthorized individuals can't access patient information.

But to a large extent, privacy measures will involve educating and training telecommuters and enforcing policies. Some health care IT managers said telecommuters who work in a home office rather than at a computer set up in the living room or bedroom are less likely to invite prying eyes.

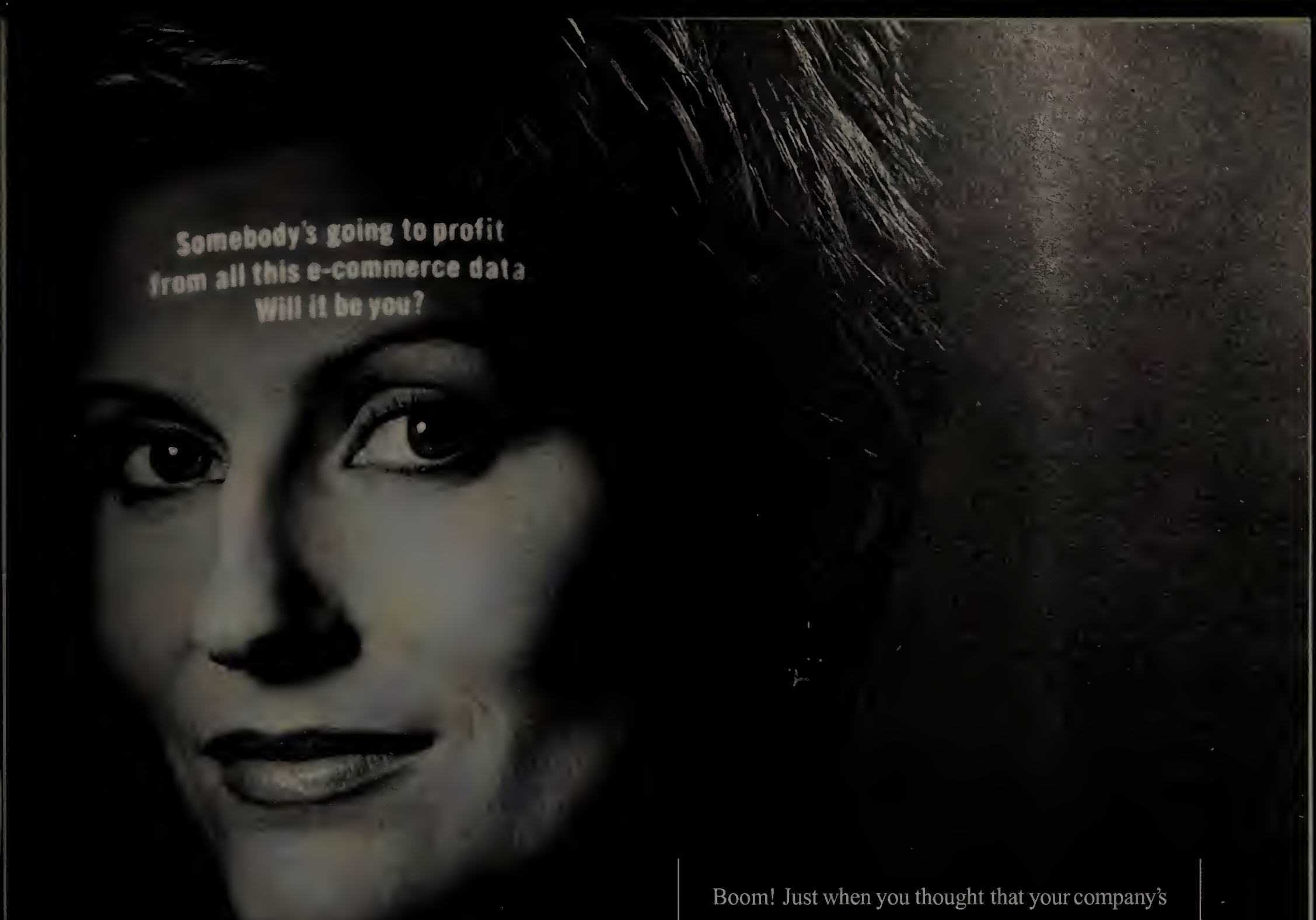
Employees at Cook County Hospital in Chicago, including systems employees who access information from home, must sign a patient confidentiality agreement prior to employment, said Soloman Appavu, director of systems planning. But in order to comply with HIPAA, the hospital will also implement strict disciplinary procedures for any confidentiality breaches, he said.

To a certain extent, however, hospitals may have difficulty ensuring that telecommuters are keeping data private, said Appavu.

"If the person is not honest, then you're taking a risk," he said. It may be "beyond that person's control to secure a device." ◗

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Microsoft Again Takes Aim at Open Source

Claims efforts could lead to 'instability'

BY TODD R. WEISS

Microsoft Corp. last week renewed its offensive against open-source software development, a move that the software vendor said was made in response to repeated queries from corporate users about how it's responding to the open-source movement.

The latest salvo against open-source efforts — the third by Microsoft since January — came during a speech in New York by Craig Mundie, the company's senior vice president of advanced strategies. Speaking at New York University's Stern School of Business, Mundie claimed that the open-source movement could result in "product instability" and "inherent security risks" for software users.

Open-source development "leads to a strong possibility of unhealthy 'forking' of a code base," potentially producing incompatible versions of programs, Mundie said. More disruptive, he added, is the GNU general public license (GPL) under which much open-source software is created.

When a developer alters software covered under the GPL, the new code is also deemed subject to the license, meaning that it's not owned by any individual company. The problem, Mundie argued, is that the GPL does away with intellectual property rights, making open-source development an unhealthy business model.

Open-source approaches "ask software developers to give away for free the very thing they create that is of greatest value, in the hope that somehow they'll make money selling something else," Mundie said.

Mundie couldn't be reached for comment about his speech. But David Coburn, a program manager in Microsoft's platforms group, said Mundie's remarks were a response to questions from customers who want to know the software vendor's position on open-source programming.

Some parts of the open-source world are seen positively by Microsoft, Coburn said. Earlier this year, Microsoft expanded a program for sharing its Windows source code with users, although no changes can be made in the code.

Al Gillen, an analyst at IDC in Framingham, Mass., said Microsoft apparently feels that it can no longer remain idle while corporate users eye open-source development. ◗

Microsoft Takes On 'Naked' PC Orders

Prizes for PC makers who report requests

BY DOUGLAS F. GRAY

MICROSOFT CORP. has sparked a new controversy by sending a letter to some PC makers offering them rewards in return for identifying corporate users who ask that computers be shipped "naked," without Windows installed.

Users who have made such requests may have "misunderstood" their Windows licensing agreements, Microsoft said in the letter, which was issued in late April to thousands of companies that assemble PCs to sell directly to businesses. The system builders were offered prizes such as software, watches and cooking grills if they identified customers seeking Windows-less machines.

According to the letter, the rewards would depend on how many naked PCs were requested by an individual user. For example, an order for 250 computers would be worth five Microsoft games to the system builder that notified the software vendor of the request. Turning in a user who is seeking more than 1,000 PCs would net a grill and a travel chair.

However, Microsoft last week said it wasn't trying to single out companies that want to install Linux or other non-Windows systems. Microsoft spokesman Matt Pilla said the letter was aimed at stopping users who believe that they have a site license allowing them to install a single copy of Windows on multiple PCs.

No such license exists, Pilla said. "There's a lot of confusion around our enterprise agreements," he added. "In fact, we don't offer any enterprise agreements that cover new computers. They cover upgrades but not new copies of the operating system."

Chris Le Tocq, an analyst at Guernsey Research in Los Altos, Calif., said the team at Microsoft that sent the letter "could certainly be deemed overenthusiastic [about] this program." Microsoft also might have gotten ahead of itself because it plans to address the situation with technology in its upcoming Windows XP and Office XP releases, he said.

Both those products are due to include "forced registration technologies designed to combat this kind of activity" on the part of users, Le Tocq said. Even so, he added, it would help small businesses if Microsoft were to make volume Windows licenses available. ◗

Gray writes for the IDG News Service.

Continued from page 1

.Net Plans

be. My first take is to wait for them to figure it out."

At the Gartner show, Allchin tried to clarify the .Net message by boiling it down to the following five points:

- A new programming model that's "loosely coupled, XML-based, message-oriented" for developers to use in a heterogeneous environment, integrated for the Internet.
- Meta-Internet services, such as Microsoft's Passport, an identification service that consumers can opt into to personalize their Web experience.
- Tools such as Visual Studio.Net to create new Web services with XML.
- "Great clients and servers" that are equipped to parse and process XML and handle messages sent using the Simple Object Access Protocol.
- Web services to which developers can program. For instance, a developer might want to link a flight-booking application on one site to a car-booking application on another.

"What Jim said added a little more detail and more pieces of the puzzle for people to figure out," said analyst David Smith at Gartner in Stamford, Conn. But Allchin didn't clear up the confusion, he added. ".Net is a huge thing, and they haven't done a very good job of describing it thus far," Smith said.

He said one miscue was Microsoft branding its enterprise servers with the ".Net" moniker, even though the ".Net enterprise servers have nothing to do with software as a service or Web services."

No matter how confusing the message, one .Net element that's expected to affect most large enterprises is the new development tools. Gartner predicted that most companies will equally leverage both .Net and Java platforms for e-business within five years.

Yet .Net won't enter the realm of possibility for most companies until Microsoft's Visual Studio.Net tool ships later in the year.

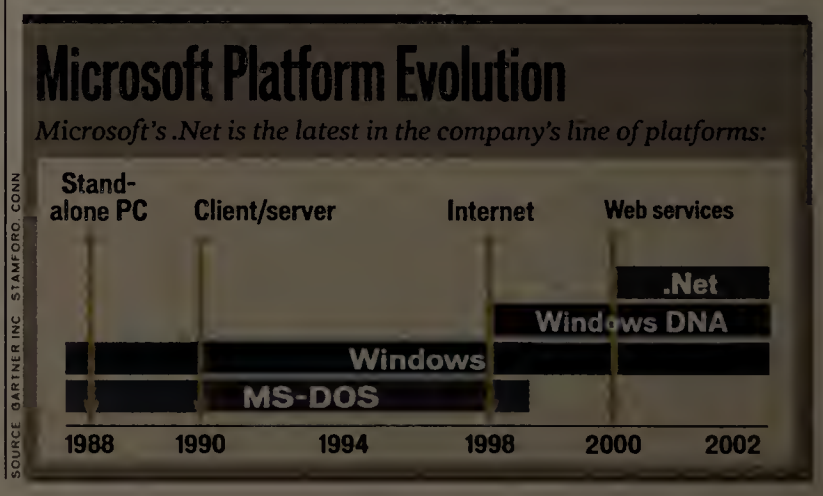
Not surprisingly, serious interest in .Net applications has been limited so far, said Rajiv Tewari, director of business intelligence solutions at Seattle-based Avanade Inc., an IT consulting company that is a joint venture of Microsoft.

Tewari, who is planning his company's .Net strategy, said he doesn't expect to see prototype .Net applications until the third or fourth quarter. He predicted that interest will ramp up significantly by the end of next year.

Tewari said one challenge will be clearing up customer confusion over the business benefits that .Net can bring. "I can convince the technical architects, the developers, because technologically, [.Net] is a superior platform," he said, noting that the .Net framework will make applications easier to develop, deploy and maintain. "However, the key factor is convincing the business folks."

Many firms are still assimilating Microsoft's last development platform, Windows DNA, said Rick Grandy, manager of network applications and systems at a Richland, Wash.-based division of Lockheed Martin Corp.

"It seems to me that .Net is trying to be both a development environment and the delivery vehicle," said Lionberger. "I expect it will change quite a bit." ◗





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U.S. Customs to Get IT Overhaul

New infrastructure will replace legacy systems

BY LUCAS MEARIAN

THE U.S. CUSTOMS SERVICE said last week that it has awarded a 15-year, $1.3 billion contract to upgrade its entire IT infrastructure, including software management systems, to a multi-industry team lead by IBM Global Services.

The Customs Service said an explosion in international trade is forcing it to replace a 17-year-old automated system that has experienced chronic outages and often forced end users to resort to alternate methods of doing business, such as using pens and paper.

The first system to be addressed in the new IT infrastructure is called an Automated Commercial Environment, which will manage the federal agency's import/export transactions and will bring the Customs Service in line with technology used in the private sector, according to Acting Commissioner Charles W. Winwood.

The selection of an integration contractor, Winwood said, is an important first step in providing U.S. Customs with "state-of-the-art technology essential to expediting movement of commerce," through every international airport, trade zone and potential border crossing. "Customs modernization will also dramatically enhance our ability to intercept contraband," he said.

The contract will upgrade computer hardware and software related to commercial trade, law enforcement and administration systems.

Tom Burlin, vice president of federal government industry at IBM Global Services, said the upgrades will run from desktops to mainframes, "replacing outdated legacy systems with best practice, off-the-shelf systems."

Burlin said the Customs Service wants to move to a more automated knowledge-based system and away from "laborious" keyboard entry used to catalog the serial number and country of origin of all products coming through U.S. border checkpoints.

"It's a very complicated system," Burlin said. "We're looking to use new commercially available products that have the ability to create intelligent systems to manage and automate databases and speed imports and exports while maintaining the control expected for safety of trade and our citizens."

The IBM-led team, called the e-Customs Partnership, includes Lockheed Martin Mission Systems in Bethesda, Md., which will develop and integrate new systems and software; McLean, Va.-based KPMG Consulting Inc.; Computer Sciences Corp. in El Segundo, Calif., which will lead the information security and telecommunications effort; and Miami-based Sandler & Travis Trade Advisory Services Inc., which will provide global trade and customs expertise. More than 40 other firms will also be involved in the overhaul.

The Customs Service also partnered with The Mitre Corp., a federally funded research and development center in Bedford, Mass., and Robbins-Gioia LLC, a program management consulting firm in Alexandria, Va. Mitre will provide strategic planning support and independent technical evaluation, and Robbins-Gioia will head up program management support for the Customs Modernization Office.

The project was mandated by the Customs Modernization and Informed Compliance Act of 1993 and other acts that require improved business functions, paperwork reduction and increased electronic processing.



JAMES R. TOURTELLOTTE

THE CUSTOMS SERVICE wants to deploy a more automated system for cataloging products that come through U.S. border checkpoints like this one.

Study: Firms Refocus Apps On Customers

BY STACY COWLEY
NEW YORK

Businesses' reasons for investing in data-management infrastructures are shifting from back-office, cost-reduction objectives to customer-oriented, revenue-generating goals, according to a study conducted by the Silver Spring, Md.-based Association for Information and Image Management International (AIIM) and Gartner Inc.

The survey results, which were released at last week's AIIM 2001 conference here, revealed that the fastest-growing niche of the enterprise applications market is customer relationship management (CRM), which is currently showing 26% annual expansion.

Gartner's definition of the enterprise applications market also includes enterprise resource planning (ERP), records management and archiving, accounts payable and receivable, and human resources management.

Totaling all five areas, Stamford, Conn.-based Gartner estimated that the market will grow from about $11 billion last year to $22.5 billion in 2004.

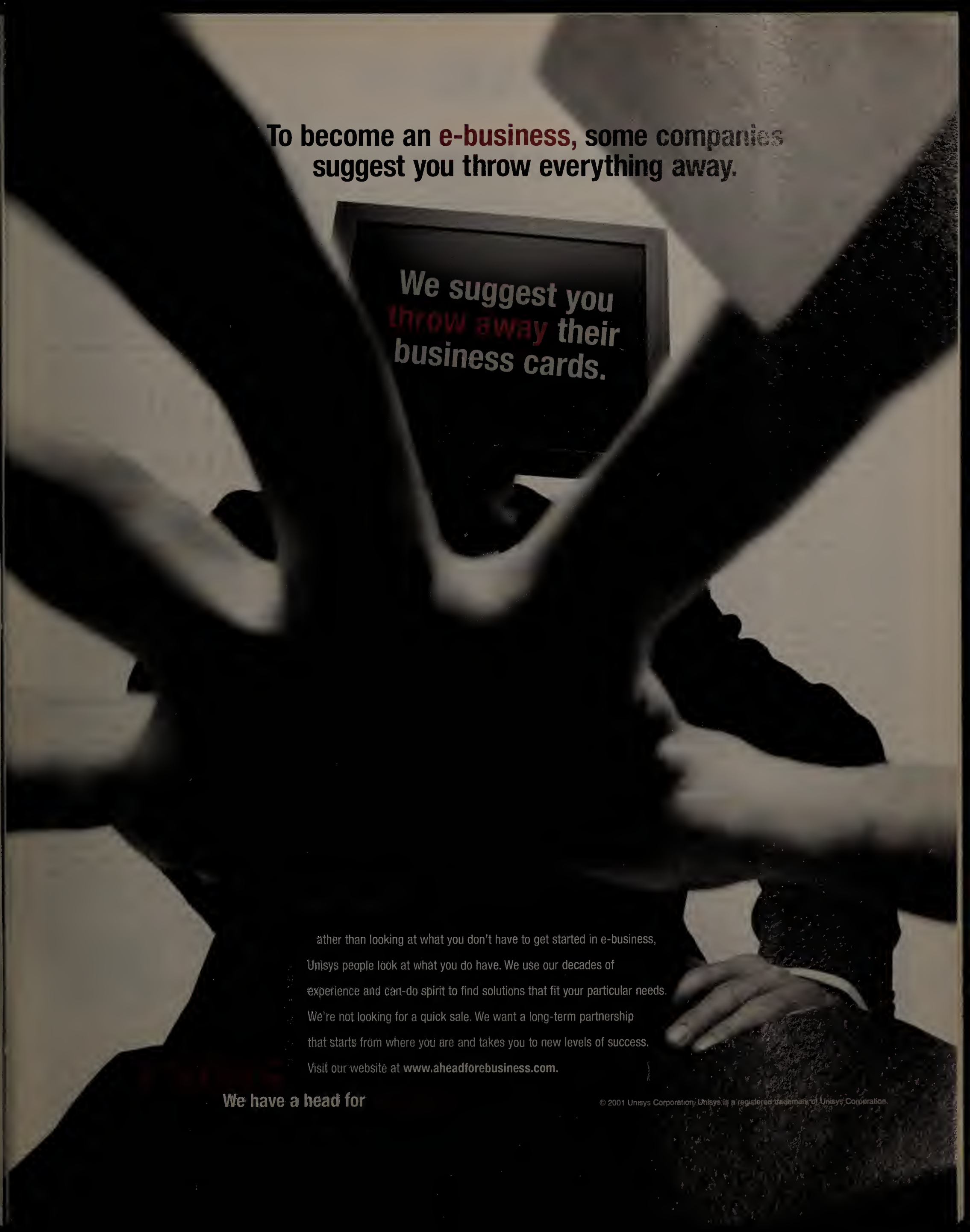
The study included responses from approximately 1,000 enterprise applications users in North America, Europe, Latin America and the Pacific Rim. Almost half of the respondents work at companies with more than 1,000 employees, and Gartner said the survey is more reflective of large organizations than of the business market as a whole.

The survey found significant interest among corporate users in outsourcing enterprise applications to application service providers (ASP), although Gartner warned that the overall market outlook for ASPs has softened since the survey was conducted in December. The research firm also cautioned that companies may be reluctant to trust sensitive data to a relatively unsecured, third-party system.

Companies of all sizes are showing significant demand for wireless ERP and CRM applications, Gartner said.

Electronic document imaging technologies are the most commonly used applications, with 58% of companies reporting that they have installed such systems. More than 45% of respondents said they use collaborative tools such as Microsoft Exchange and Lotus Domino. Only one-third of those surveyed said they currently use content-management software, but 21% said they plan to use it soon.

Cowley writes for the IDG News Service.


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CA Accounting Procedures Under Scrutiny

Times *article says CA skewed earnings*

BY MARC L. SONGINI

Executives at Computer Associates International Inc. last week defended the company's new accounting procedures, even as the firm's stock plummeted after a negative article about the changes appeared in the press.

Last week, CA said its financial reporting methods, attacked in an April 29 article in *The New York Times*, are sound and aren't an attempt to obfuscate real earnings. Islandia, N.Y.-based CA prepared a press release responding to the *Times*' claim that, based on standard accounting procedures, CA's "sales have fallen almost two-thirds over the last six months" and that it's using a new financial reporting system, started last October, as a smoke screen to cover it. The newspaper based its conclusion on CA's April 16 preliminary fourth-quarter results announcement, in which CA stated its revenue would be $732 million, a decrease from the previous year's $1.9 billion.

Although CA had reported on a pro forma/pro rata basis annual revenue of $1.44 billion, up from last year's $1.39 billion, the article shook up investors enough to cause the firm's stock to plummet by more than 11% on April 30. In a press conference that same day, CA President and CEO Sanjay Kumar defended the numbers and said the *Times* hadn't fully taken into account the use of the new accounting model, which books the value of a contract incrementally on a monthly basis; previously, CA had booked the full value of such contracts upfront. Kumar said the newspaper overlooked the fact that under the new model, CA had also reported $1.3 billion in "residual value," or backlog, which isn't considered revenue.

Several analysts maintain that the dispute amounts to a half-empty/half-full water glass conundrum.

Both sets of numbers that CA uses are useful to evaluate its performance, said Chris Mortenson, an analyst at investment bank Deutsche Banc Alex. Brown Inc. in New York. While the changeover in accounting methods should make observers cautious, there is "nothing in it to lead any analysts to believe they're cooking their books," Mortenson said. The company's cash flow has been strong, and that's the key metric to evaluating a firm's health, he said.

Either way, the dispute won't affect CA's enterprise users, said Richard Ptak, an analyst at Framingham, Mass.-based consultancy Hurwitz Group Inc. It's just an "accounting dispute," Ptak said.

> [It's just an] accounting dispute.
>
> RICHARD PTAK, ANALYST, HURWITZ GROUP, ON WHY THE CA-*NEW YORK TIMES* DISPUTE WON'T AFFECT USERS

Tale of Two Procedures

In the case of a three-year, $3 million license fee transaction:

OLD SYSTEM: All $3 million is realized as revenue in the quarter the contract was sold.

NEW SYSTEM: The $3 million is realized monthly over the term, so $250,000 is realized each quarter until the contract ends.

Microsoft Plans to Simplify Integration With Identrus Net

Products aimed at financial services firms

BY JAIKUMAR VIJAYAN

MICROSOFT CORP. is working to make several of its core products easier to integrate with Identrus LLC's secure global network for financial services firms.

Under an agreement between the two firms announced last week, Microsoft will add new hooks and tools to products such as Windows 2000 and .Net enterprise servers that will help them work better with the Identrus network.

Microsoft will also work with Blue Bell, Pa.-based Unisys Corp. and Dublin-based Baltimore Technologies PLC to develop and sell a prepackaged, Identrus-ready technology suite that financial services firms can use to quickly secure high-value, Internet-based transactions.

New York-based Identrus was established by eight leading global banks, including ABN Amro Bank NV, Bank of America Corp., The Chase Manhattan Corp. and Citigroup Inc.

Since 1997, Identrus has been building a global system based on public-key infrastructure (PKI) and aimed at letting financial institutions and corporate trading partners reliably identify one another during e-commerce transactions. The system is also designed to create nondisputable records of the transactions.

Identrus has prescribed specifications, standards and interoperability test processes that technology vendors must meet to be able to sell to member institutions. More than 45 banks are currently part of the Identrus system.

The agreement with Microsoft means that more applications are becoming available to meet these requirements, said Laura Rime, an Identrus director.

Simpler for Banks

As part of the agreement, Microsoft will integrate products such as Windows 2000 and BizTalk with an Identrus tool kit that specifies how messages are to be handled within the Identrus system and how validation of certificates should work, Rime said.

Such processes are already possible but typically take time and integration efforts by Identrus' member banks, she said. The agreement will make it simpler for financial institutions to bring Microsoft products into the Identrus network, Rime said.

"It's a great win for Identrus, because the integration effort was always forced on banks," said Pete Lindstrom, an analyst at Hurwitz Group Inc. in Framingham, Mass. "Identrus wants to make access to their service as ubiquitous as possible. This makes it easier for them to get the message out to prospective banks that there is no integration required [on the client] side."

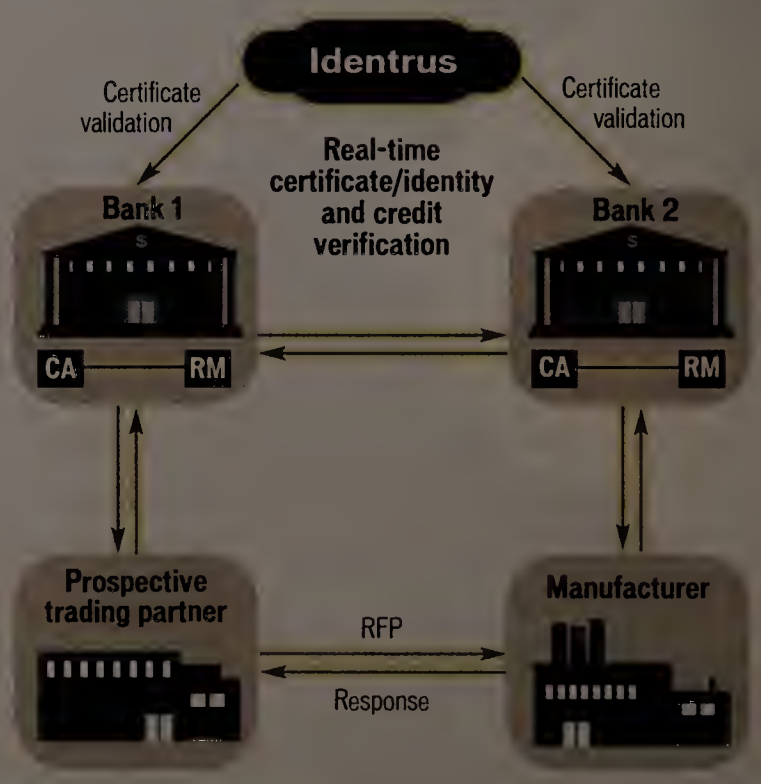
Products such as Windows 2000 already support both PKI and mechanisms for secure e-commerce, said Bill Hartnett, global director of financial services at Microsoft.

However, "there are certain pieces of the Identrus standard and certain Identrus-specific [requirements] that need to be met," which Microsoft is now integrating into its products, Hartnett said. He added that Identrus-ready Microsoft products should be available in the second half of this year.

Microsoft, Unisys and Baltimore Technologies plan to design, develop and sell a Windows 2000-based technology suite that combines Baltimore's Unicert PKI technology with Unisys' applications, systems integration services and project management and consulting services.

The suite will include Identrus-compliant smart card management technology, a digital signature messaging system, validation services, Federal Information Processing Standard 1401-1 Level 3 hardware security modules and secure transaction logging services.

A Transaction in the Identrus Network



BRIEFS

Micron Sells PC Unit To Turnaround Firm

Micron Electronics Inc. last week announced a deal to sell its money-losing PC business to a Los Angeles-based company that tries to turn around struggling technology vendors. The sell-off agreement with Gores Technology Group comes six weeks after Nampa, Idaho-based Micron disclosed plans to exit the PC market and refocus its operations on Web hosting services aimed at small and medium-size companies. That decision followed a loss of $168.9 million in Micron's second fiscal quarter, which ended March 1.

Vignette Corp. Cuts 200 More Jobs

Vignette Corp., a supplier of e-business applications, has laid off 200 employees, or 10% of its workforce. The announcement came less than a week after the Austin, Texas-based company reported a first-quarter operating loss, excluding special charges, of $8.1 million, or 1 cent per share, on revenue of $90.1 million. Vignette already laid off 450 workers in January.

Adobe to Shut Down For One Week in July

In a step similar to those taken recently by Sun Microsystems Inc. and Hewlett-Packard Co., San Jose-based Adobe Systems Inc. said it will shut down operations during the first week of July. The company is requiring its approximately 2,000 employees in North America to take that time off. Adobe said the move is expected to save the company $400 million.

Short Takes

Pleasanton, Calif.-based PEOPLESOFT INC. said it plans to acquire SKILLSVILLAGE INC., a Sunnyvale, Calif.-based supplier of contract service management software, for $33 million. . . . E-commerce hosting firm LOUDCLOUD INC., also in Sunnyvale, said it's planning to lay off 122 workers, or 19% of its workforce, in an effort to achieve a break-even cash flow.

Cisco Targets Service Providers With Switch

Developed in-house, optical technology will help vendor compete with Nortel

BY JAMES COPE AND LUCAS MEARIAN

ALTHOUGH CISCO Systems Inc. is the dominant supplier of enterprise networking equipment, analysts said the vendor lags in the service provider category where traditional telecommunications equipment manufacturers like Nortel Networks Corp. rule.

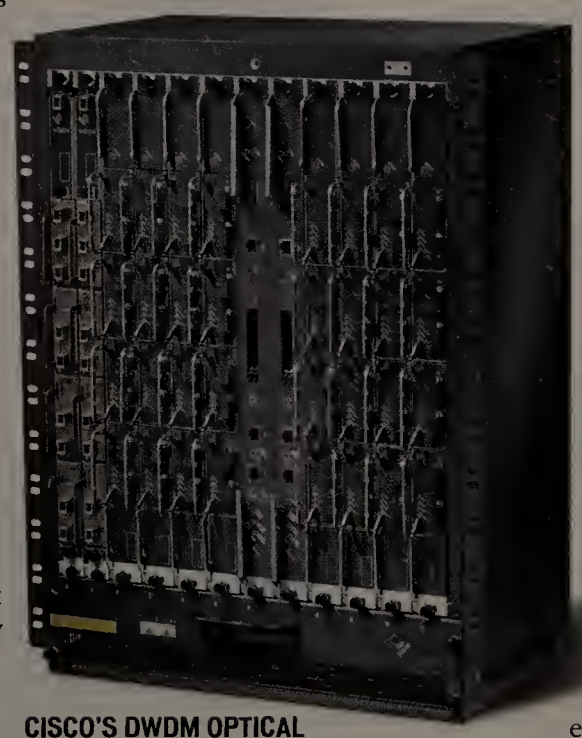
But Cisco maintained that an optical switching system it announced last week should help in its quest for a bigger share of the service provider networking market and at the same time open a door to the storage-area network (SAN) arena.

Cisco's new system is called the ONS 15540 Extended Services Platform (ESP). Company officials said it was developed in-house rather than through acquisition, as were earlier products in the Cisco optical line.

The ESP employs Dense Wavelength Division Multiplexing (DWDM), a technology that increases bandwidth by shooting different data streams at different frequencies or wavelengths over the same optical fiber. The initial system will accommodate as many as 32 individual wavelengths that can operate at speeds from 16M bit/sec. to 2.5G bit/sec. The basic system will sell for $67,000 and is expected to be available next month, Cisco officials said.

Cisco's main competitor in this area is Brampton, Ontario-based Nortel and its Optera system. AT&T Corp. plans to use both systems for its Ultravailable Broadband Network, an optical network for large corporate customers, said Bernie McElroy, vice president of business development for business continuity solutions at AT&T.

But McElroy wouldn't comment on the cost and performance difference between Cisco's and Nortel's systems; instead, he said the brand of equipment AT&T installs depends on the application and, often, end-user preferences.



CISCO'S DWDM OPTICAL system switches as many as 32 optical wavelengths at up to 2.5G bit/sec.

SAN Market at Stake

David Willis, an analyst at Meta Group Inc. in Stamford, Conn., said that although the new Cisco system may have some price advantage compared with Nortel's Optera, Cisco still doesn't have the strong relationships with service providers, particularly large carriers, that Nortel has.

But Grier Hansen, an analyst at Giga Information Group Inc. in Cambridge, Mass., said the new system makes Cisco competitive at the core of metropolitan-area networks as well as at the edge.

A key question is whether the new DWDM product will help Cisco penetrate the lucrative SAN market.

Bob Zimmerman, a storage analyst at Giga, said he believes it will. He predicted that Cisco's move into the storage arena will ignite competition with San Jose-based SAN switching technology leader Brocade Communications Systems Inc., which owns 60% to 90% of the switch marketplace. "I think Cisco is going to dominate that discussion," Zimmerman said.

But Greg Brashier, an analyst at Strategic Research Corp., a network storage management market research firm in Santa Barbara, Calif., said DWDM in the SAN marketplace is still very much in its infancy.

"Most [potential buyers] won't even know what [DWDM] stands for," he said.

Exodus CEO Details Moves In Management Ranks

CFO, COO among those departing ISP

BY JAMES COPE

When Exodus Communications Inc. announced last week that Chief Financial Officer Marshall Case was leaving, officials failed to mention that the company's president and chief operating officer, Don Casey, was departing too.

But after inquiries from analysts, Exodus Communications Chairwoman and CEO Ellen Hancock held a conference call to clarify management changes at the Santa Clara, Calif.-based Internet service provider.

Hancock said Casey, who previously was president of Wang Laboratories Inc. in Billerica, Mass., and signed on with Exodus a year ago, "chose to leave the company." His departure, she said, was associated with a management realignment to help Exodus "achieve a single and integrated face to the global marketplace."

Casey's responsibilities have been split up among Hancock, Laurie Priddy, who is executive vice president of North American operations, and Sam Mohamad, president of sales and international field operations. Priddy will manage the company's domestic data centers. She was COO at Web hosting services firm GlobalCenter Inc. before Exodus acquired it from Hamilton, Bermuda-based Global Crossing Ltd. in January for $6 billion.



SETH AFFOUMADO

CEO HANCOCK: The executive shuffle was done to "achieve a single . . . face."

Mohamad, who has been at Exodus since 1997, will assume responsibility for marketing and professional services in addition to his current sales duties, Hancock said. She also noted that Morris Taradalsky, executive vice president of engineering and technology, who previously reported to Casey, will now report to her.

Beverly Brown, Exodus' executive vice president and chief marketing officer, has also left the firm. Hancock said that Brown had planned to leave for some time for personal reasons.

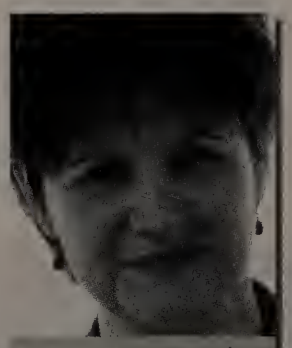
Dick Stoltz, who stepped down as COO and CFO at Exodus in January of last year, will take over the day-to-day financial duties previously performed by Casey, Hancock said. Stoltz has remained involved with Exodus since his departure, serving as a senior adviser for strategy and finance.

Two weeks ago, Exodus reported a net cash loss of $118.3 million for the first quarter of 2001, compared with a net cash loss of $60.2 million for the same period last year.

MARYFRAN JOHNSON

Security Proofs

THE ONGOING SECURITY screw-ups with Microsoft's Windows 2000 must have corporate customers steaming. Only last week, the most serious one yet turned up, this time as a flaw in an extension to the server operating system that could give a malicious intruder free rein on a company's internal network. Enterprise users running Microsoft's Internet Information Services 5.0 software were urgently advised to install the available patch immediately.



MARYFRAN JOHNSON is editor in chief of *Computerworld*. You can contact her at maryfran_johnson@computerworld.com.

This latest alarm bell rang only a week after Microsoft had to admit that 26 of its largest support customers — those paying for Gold and Premier levels of service, no less — were exposed to the FunLove computer virus. How? Through Microsoft's failure to follow its own virus-scanning policies, leaving potential attackers with a conveniently open window, so to speak.

As Microsoft lumbers up its steep learning curve on security, it's clearly making that climb on the backs of your businesses. And it's happening at a time when the twin business imperatives of e-mail and e-commerce are exposing more corporate systems to hackers every day.

No wonder IT security professionals are swiftly moving out of back-office support roles and into strategic positions. "The higher the stakes get, the more security is a business issue," notes David Foote, a consultant quoted in one of our stories this week ["The New Security Pro," page 69].

But let's suppose that Microsoft and the growing cabal of security product vendors were really listening to customers. What would they offer you? We took a look at that question in another story this week, "Managing the Virus Threat" [page 66], and discovered that security pros need a "single-console" approach to manage the hodgepodge of cross-platform antivirus products. Imagine being able to coordinate dozens of antivirus updates from multiple suppliers, or to get new virus alerts equipped with preventive measures *before* the vendor patch is delivered.

Ah, but here's the catch: All of the above capabilities would require far too much cooperation and customer focus. As one security product manager candidly acknowledged in our story, any vendors that provide such a single-console approach are "basically admitting their full complement of products isn't a good approach."

As Microsoft has proved repeatedly of late, even the company that owns the underlying platform can't do security right all by itself. It needs to work in concert with other providers, and all of them need to lose that "not invented here" mind-set that puts vendor spin first and customer needs second.

Serious about enterprise security? Show us some proof for a change.



PIMM FOX

B2B: You Can Find Success in Private Sites . . .

BUSINESS-TO-business e-commerce exchanges are getting a bum rap. Business executives say they don't live up to the hype, and vendors rattle Wall Street with lackluster earnings and sales. But this isn't the complete story. Most of this angst concerns public B2B exchanges.

For real success, look at what's going on with corporate or private B2B marketplaces. Private exchanges for major corporations such as IBM and Sikorsky Helicopter have inherent advantages that public exchanges may never acquire.

First, owners of private exchanges regulate supplier and customer access — and exclude competitors — making the sharing of sensitive information more likely.



PIMM FOX is *Computerworld*'s West Coast bureau chief. Contact him at pimm_fox@computerworld.com.

Second, owners can direct suppliers and customers to use the exchange through price incentives or by mandating changes in the way to conduct business.

Third, private exchanges can be secured and tailored to serve specific projects and customers, unlike public exchanges, which must be generic so as to accommodate everyone.

For example, at Sikorsky, Darryl Toni, a senior technical structures engineer who works on the composite material that goes into the Army's Comanche helicopters, manages drawings for the airframe, landing gear and propulsion system, using a secure private exchange to cut the time and cost of documentation and drawing revisions.

"We've been able to save about 20% of our time in the structures area," Toni says. Using the private exchange and technology from Santa Clara, Calif.-based Nexprise also meant eliminating the contractual requirement to produce six volumes (at 600 pages each) of paper documentation for the Army. "It used to take 12 engineers a couple of months to produce this," a task that's now eliminated, he adds.

IBM, meanwhile, has saved about $1.7 billion since 1993 by being able to divulge sensitive price and inventory information over a private exchange built for 25,000 suppliers and customers, says Bill Paulk, IBM's vice president of e-marketplaces. As host of the exchange, the company helped defray the cost of connecting suppliers. The payoff: On-time delivery to customers soared from about 50% to close to 90%, "which helped justify the cost," Paulk says.

Public exchanges such as Cordiem, which serves the aviation industry, and the automobile

Divide and Conquer Helps in Move to IP Telephony

Merging voice and data on a single network can be surprisingly painless, if you plan properly and divide the work into doable projects

THE ECONOMY IS SLOWING: the board of directors is hitting you over the head to cut costs; yet they want employees to be more productive than ever.

How do you cope? The answer may be through merging your voice and data networks into one, single IP-based network. Moving to IP telephony, in which voice calls travel over the same corporate network as data, can reduce your investment in network infrastructure and reduce costs for support and administration. A single converged network also makes it easier and more cost-effective to deploy new applications that increase productivity or enhance customer service.

The numbers show that migrating to IP telephony is possible and profitable right now. According to a survey by Stamford, Conn.-based Meta Group Inc., 26% of enterprises have already begun to move to integrated voice and data networks, and 42% plan to begin such a migration within the next two years. Two thousand Cisco Systems Inc. customers have already implemented such merged networks, ranging in size from several hundred phones to 25,000 phones. Cisco's shipments of IP phones rose from just over 30,000 in the first quarter of last year to 80,000 in the fourth quarter.

Migrating from the traditional world of separate data and voice networks to a converged voice and data network can be tricky. One of



CISCO SYSTEMS

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the reasons for this is that new IP telephones must share a numbering system and voice-mail system with the existing phone systems. IP telephony can be confusing because it blurs the traditional lines between the networking staff and the telecom staff, and requires both groups to learn new skills.

But with the proper tools and approach — which is often to divide the migration into manageable phases — the move to IP telephony can be done easily and effectively, according to customers who have made the journey. "Quality of voice was a very pleasant surprise," says Barry Brock, director of information technology services at Algonquin College in Ottawa, Canada. Another surprise, he says, "was the ease of installation. It went better than we expected."

> "We literally did things in about two weeks. The migration is no worse than it is if you were [upgrading] a normal voice solution."
>
> Rock Regan
> CIO
> Connecticut Department of Information Technology

IP telephony — also known as voice over IP — is an offshoot of the global move to Internet Protocol (IP) which underlies the Internet, and has also become the de facto standard for inter- and intra-company communications. As network bandwidths have increased from 10M bit/sec. to 100M bit/sec. and to Gigabit Ethernet on the corporate backbone, many IT and network managers are looking to save on management and support costs by adding voice traffic to the data network infrastructure already in place.



Many customers report significant savings, and not only from combining their voice and data support staffs. For one thing, some fundamental characteristics of IP networks make them easier to administer for voice users compared to traditional phone systems. At Menlo College in Atherton, Calif., it previously cost between $120 and $180 to make the physical wiring changes needed to simply move a telephone user to a new location, something which happened around 150 times per semester, says director of information technology Patrick Olson. "Now, we just basically pick up the telephone and go," he says, because the campus's IP telephones can retrieve their configuration information from the network wherever they are plugged in.

Another benefit, which is especially attractive during downturns, is that IP telephony makes greater use of an existing corporate asset, meaning that both the sunk costs of the current network and the costs of future upgrades will improve both data and voice delivery.

Finally, there is the harder to quantify, but very real benefit, of using a combined voice and data network to deliver new information and services to customers that weren't possible before. These include existing technologies such as unified messaging, which is the ability to access and immediately respond to voice, fax and e-mail messages from any phone or PC within the enterprise. Brock foresees a day when the voice and data network will allow a member of the college's business staff to talk a student through a Web-based class registration process, which will improve service to students and cut the school's administrative costs.

Customers are finding that adding voice traffic places relatively small demands on today's robust data networks. They are also finding that features such as 10/100 Ethernet switches embedded within

IP phones and advanced quality of service features in data center switches can guarantee superior voice quality by ensuring voice packets receive the highest priority for network bandwidth. Linking IP-enabled telephones to existing voice-mail systems, a major concern for some customers, can be accomplished with products such as Cisco Systems Inc.'s Digital PBX Adapter (DPA).

Migration Fears

But some customers are still hesitant because of the costs of IP telephony equipment and converged network management. They also fear their networks will be overwhelmed by the combination of voice and data traffic, resulting in either poor-quality sounding phone calls or slow data delivery.

However, the State of Connecticut did a 350-seat installation and its Department of Information Technology, CIO, Rock Regan, estimates the IP-telephony network cost less than it would have cost for a traditional private-branch exchange (PBX) and a separate data network. IP telephony also allows voice traffic to piggyback on the data network, which is already in place and is an accepted cost of doing business. "The [network] is going to be continuously upgraded over time anyway" to handle more data traffic, says Brock, with each upgrade adding capacity which can be easily used for voice.

The migration can get a bit difficult when the new, IP-based system must co-exist with existing voice-mail systems or PBXs, says Cisco's manager of technical marketing, Bill King. For that reason, he says, if an installation is relatively small — say, several hundred users — "sometimes it just makes sense to replace everything all at once." But "when you've got 20,000 users, you don't pull everything out overnight," says King. "We learned to take a gradual approach" in Cisco's own migration to IP telephony, he says, and has since been migrating logical groups of users to converged networks, interconnecting the new system with the older PBX, and then over time adding more users to the converged network while removing them from the PBX.



Telecom managers, or network administrators, also have to design a dialing plan so "calls get routed to the right systems without confusion," he says. "You have to pay attention, as you add and delete users, to be sure you're not getting messed up" by inadvertently assigning the same extension numbers to both the old and new systems.

The quality of voice has simply not been an issue with IP telephony, according to several customers. "I called my Dad, who lives here in town — he couldn't get over the clarity of the call," says Brock. That may come as a surprise to anyone who has ever heard the pauses, dropouts and delays caused by the latencies as a long-distance call traverses the public Internet. But on a more tightly controlled corporate network, there's usually capacity to spare for voice traffic and it's easier than on the Web to give voice traffic the priority it needs.

> A PROPER, ROBUST DATA NETWORK WILL ASSURE GOOD VOICE QUALITY.
>
> PATRICK OLSON
> DIRECTOR OF INFORMATION TECHNOLOGY
> MENLO COLLEGE

Consider, for example, a 400-port switch linked to a Gigabit Ethernet network. Since calls are carried over the network as 64K bit/sec. voice samples combined with 16K bit/sec. of header information, says King, even if all 400 phones connected to the switch were in use at once they would take up less than 5% of the bandwidth available on the link.

"There's a misperception that voice has a big impact on the network," he says. "It really doesn't on

the LAN, or on metropolitan, high-speed networks." In addition, the built-in switches in Cisco IP telephones automatically "mark the packets they create" as high-priority packets, says King, making sure the packets which make up the human voice in a call arrive more closely to each other than the packets which make up, say, a Web page.

Customer Service Over IP

Algonquin College didn't start out looking to move to IP telephony. All it needed, says Brock, was a way to provide voice and data service to a new residence hall it was building at its main campus. Prior to the start of the project in October 1999, that campus was served by a Nortel switch to which no more ports could be added, says Brock. "It either had to be upgraded, a new switch had to be put in or we had to find some other solution. All we wanted was for it to be on time, cost-effective and to work. It could be voice over IP, it could be a voice switch and data switches or any combination thereof."



ANOTHER ATTRACTIVE MIGRATION SCENARIO IS IF SOMEONE IS LOOKING AT SIGNIFICANTLY IMPROVING CLIENT SERVICE.

BARRY BROCK
DIRECTOR OF INFORMATION TECHNOLOGY SERVICES
ALGONQUIN COLLEGE

The college received five bids for the work, four of which were traditional combinations of telephone and data switches with the fifth based on Cisco's Architecture for Voice, Video and Integrated Data (AVVID), says Brock. He retired the Nortel switch and replaced its core Cisco 5500 switches with Cisco 6509 switches and upgraded the switches in the buildings to be served by IP telephony from Cisco 2924s to 3524s — in both cases for the quality of service capabilities in the high-end switches and to provide in-line power to the phones. The school's core Gigabit Ethernet backbone is linked to the local switches by 100M bit/sec. Ethernet.

By August of 2000, the college was able to provide combined voice and data services to the new residence hall and to two academic buildings as well as all 80 users at a remote campus, for a total of 600 users. That number is expected to rise to 1,000 by this fall, and 1,400 by next spring, says Brock, with the entire 2,500 phones on the school's campuses being IP-enabled within three to five years.

Like other customers, and Cisco itself, Brock found that moving all his users to IP telephony at once would be cost-prohibitive. While he declines to give costs for his IP telephony rollout, he does say that "if you're not overly rich," the best times to consider migrating to IP telephony are when building a new facility or when doing a significant upgrade to the corporate data network, when voice capabilities can be added at relatively little expense and can pave the way for a future decommissioning of the existing telephone network.

Another attractive migration scenario, he says, is "if someone is looking at significantly improving client service." For Algonquin College, that meant making it easier for its clients (the students) to do everything from registering for courses to checking to see if a scholarship check had arrived. "Right now," says Brock, "all a client services representative does is take a phone call and look at a student's record online. There's no Web follow-up, no collaboration, no e-mail, [online] chat or anything like that."

The real benefits will come, Brock hopes, within two years with the advent of integrated messaging for the client representatives. Right now, different groups of employees answer student questions that come in through phone calls, e-mail, paper mail or fax. With IP telephony, any employee will be able to

answer any question a student asks of them, regardless of how the student contacts the service representative.

Under this scenario, if a student can't find what he needs on the school's Web site, for example, "all he has to do is push a button and send his phone number to the [customer service] agent" who can automatically call the student, says Brock. "The Web page he's looking at is visible to the client service representative; using mouse clicks, she's able to point him to various parts of the Web site." Over time, Brock sees these service improvements as being more important than any cost savings over a traditional phone system, which he even sees as "a wash."

> "When you've got 20,000 users, you don't pull everything out overnight."
>
> Bill King
> Manager of Technical marketing
> Cisco

One reason IP telephony won't be a big cost-saver in the short run is training time for his IT staff. While his staff was experienced in Cisco equipment, "it was still a very steep learning curve for my staff . . . just understanding how the technology worked, understanding how the voice and data systems interacted with each other" as well as the programming required to set up the IP telephones for service. The same will be true for the client service representatives, he says, who are only now moving away from "green screen" terminal emulation applications to more integrated applications.

"In the short term, we will probably get improved service as opposed to cost savings," he says. True to his own advice, he plans to move other users to IT telephony as upgrades to the existing data network make it feasible, moving toward his long-term goal of truly unified messaging to improve the college's customer support. "That's where we're going to reap the benefit," he says.

Real Reason for Migration

Regan is the first to admit his migration to IP telephony wasn't typical: He converted the 350 users in the state of Connecticut's Department of Information Technology in a very short time after a flood knocked out everything in the basement of a state data center. "We literally did things in about two weeks," says Regan. "The migration is no worse than it is if you were [upgrading] a normal voice solution." Regan also had to relocate his IT staff to a new data center and get their phone service up and running very quickly.

But the march to IP telephony wasn't entirely forced. Regan had already merged the IT groups, which supported voice and data networks, "so we were very interested in looking at converged solutions." He was hoping a combined voice and data network would be less expensive to manage than separate voice and data networks for the state's 50,000 users, and that if anyone within the state government were to try it first, "it should be us. We wanted to be our own guinea pigs; we wanted to understand the technology first."

Dealing with a relatively small number of users, Regan had the luxury of doing a clean cutover; a migration path for relatively small installations is often the easiest procedure. "When folks showed up in their new office," they had a new IP telephone and new number, he says. He left their older numbers in operation for as much as four to six weeks, forwarding calls from the older numbers to the new IP phones. The clean cutover also eliminated any need to provide links between old and new voice-mail systems.

Such a "flash cut makes sense for sites with fewer than about 300 to 500 users," says King. "If they already have a Cisco network in place, a lot of the installation work can take place in advance since the phones, CallManager system and gateways for inbound and outbound calls can be installed and tested without affecting the PBX equipment already in place."

The move to IP telephony was not only faster, but also less expensive than building two new networks for voice and data, says Regan. Learning the technical skills to manage the converged network was not a major issue. "Within a month to six weeks, I think our folks were very comfortable with



coming through that learning curve," says Regan.

A bigger challenge, he says, is some confusion between the merged voice and data staffs about "where the lines are drawn. In a traditional voice world, and a traditional data world, the lines were very distinct. Typically, when you had a problem, you knew who to call," but on a converged network, "it could be something the guys on the data networking side did that caused" a problem with voice traffic over the network.

But the blurring of the lines is a good thing, and actually part of what he hoped to see from his adoption of IP telephony. "We're not looking at the 'voice guys' and the 'data guys' anymore," says Regan. "We're looking at 'network guys.' "

While pleased with the speed of installation and the quality of the voice service, Regan will take a case-by-case approach to migrating more of the state's 50,000 workers to IP telephony. "We haven't determined we're going to go only voice over IP going forward," he says. The choice of telephone technology will depend on each agency's needs, the capacity of its existing data network to handle voice and its financial situation.

Cisco: "Shrink and Grow"

Cisco itself has learned the benefits of a gradual move to IP telephony since beginning its internal migration in 1998. Today, more than 60% of the more than 20,000 users at its San Jose, Calif. campus are using an IP telephony-based system, with the rest expected to follow by the end of the year.

IT staff must examine the entire network infrastructure to ensure it can handle the additional load of voice traffic, and to develop an end-to-end quality of service plan for the entire network. In the early stages of the rollout, for example, many Cisco users had access to only 10M bit/sec. network links, rather than the 100M bit/sec. network which can handle speed-sensitive voice traffic much more easily. In addition, many of the older Cisco Catalyst switches in the Cisco LAN did not support advanced quality of service features, which assure voice packets top priority on the network. Making a gradual move makes it easier to upgrade key sections of local and wide-area networks as needed, rather than making the move to IP telephony dependent on a company-wide network upgrade.

Uninterrupted Service

Another reason to migrate one group of users at a time is the need to maintain uninterrupted telephone and voice-mail service during the cutover, which in a large enterprise requires that both the old and new systems co-exist. Many customers already own, and want to keep, existing voice mail systems from vendors such as Lucent Technologies Inc.'s Octel Messaging Division rather than be forced to replace their voice mail at the same time they upgrade to IP telephony, says King.

Cisco's Digital PBX Adapter (DPA) typically sits between an Octel voice-mail system and Cisco's CallManager, emulating the digital phone protocols the Octel system expects to see. DPAs can also be configured so that users accessing either a PBX or a Cisco IP Telephony CallManager system can access the same Octel e-mail system. This can allow network managers to keep PBXs in operation for part of an enterprise while the network infrastructure is prepared for others to begin using IP telephony.

That is exactly the approach Cisco is taking, which King calls "shrink and grow." This means installing an IP-telephony system for a department, or building, or a particular local exchange number, that makes up a "community of interest" or logical group which can be migrated all at once.

The new system is linked to the existing PBX, usually with primary rate interface (PRI) trunk lines to provide a common dial plan between the new and old systems, he says. In the case of an older Lucent Technologies PBX co-existing with a newer Cisco CallManager system, for example, Cisco

CallManager can be configured so that it automatically routes calls on the older system to the PBX over the trunk line. Systems can even be configured so that all outside calls, for example, "could be routed across the old system and out the old trunk line."

Over time, network administrators can grow the new system by adding users, while shrinking the older system by moving users off, he says. "The end game is to move all the users" to the newer IP telephony system, he says, but in a controlled way that ensures uninterrupted service and good voice quality.

Such peaceful coexistence, of course, requires a properly designed "dialing plan," or numbering system, that assures no numbers are duplicated across the systems. Customers often want to preserve as much of their current dialing plan as possible, says King. Changing the dialing plan is a manual process, he says — "You have to add the extensions to the new system and delete them from the old" — another reason to go slow and move, say, a floor or a building at a time to the new system. "It makes it easier to keep track of the moves," he says.

Vacation Upgrade

With 500 telephones in use, Menlo College was small enough to consider a "flash cut" where all users were moved to IP telephony all at once. And as a college, it had another advantage: Summer break, when the campus was quiet enough to combine a network upgrade with the move to IP telephony.

Before the upgrade, the college was served by a shared 10M bit/sec. LAN in four of the campus's 13 buildings, linked by a fiber ring, but students lacked access to the on-campus LAN and had slow dial-up connections to the Internet. IP telephony would, figures Olson, eliminate the need for a full-time person to execute telephone wiring changes on campus, and allow him to use IP networking skills "we already have" to manage the voice network as well. Finally, the new system would open the door to future applications such as teleconferencing and Web-based registration.

The $1.95 million project, which was completed between late May and late August, included upgrading the campus network to an intermediate distribution frame Gigabit Ethernet network running over four fiber rings throughout the campus, linked to a Cisco Catalyst 6509 switch at the data center and Cisco Catalyst 6000, 4000 or 3500 switches in each building. Olson expects to recover his investment within five years through reduced support costs and the ability to sell telephone services for which they would have otherwise paid Pacific Bell.

Olson says he found the construction work needed to upgrade the physical network a greater challenge than anything related to the network upgrade or the IP telephony system. Because of the amount of capacity now available on the campus network, voice quality hasn't been a problem — and his main advice to other customers is that running "a proper, robust data network" will assure good voice quality. "Five hundred telephones on top of a Gigabit network is nothing."

Lessons Learned

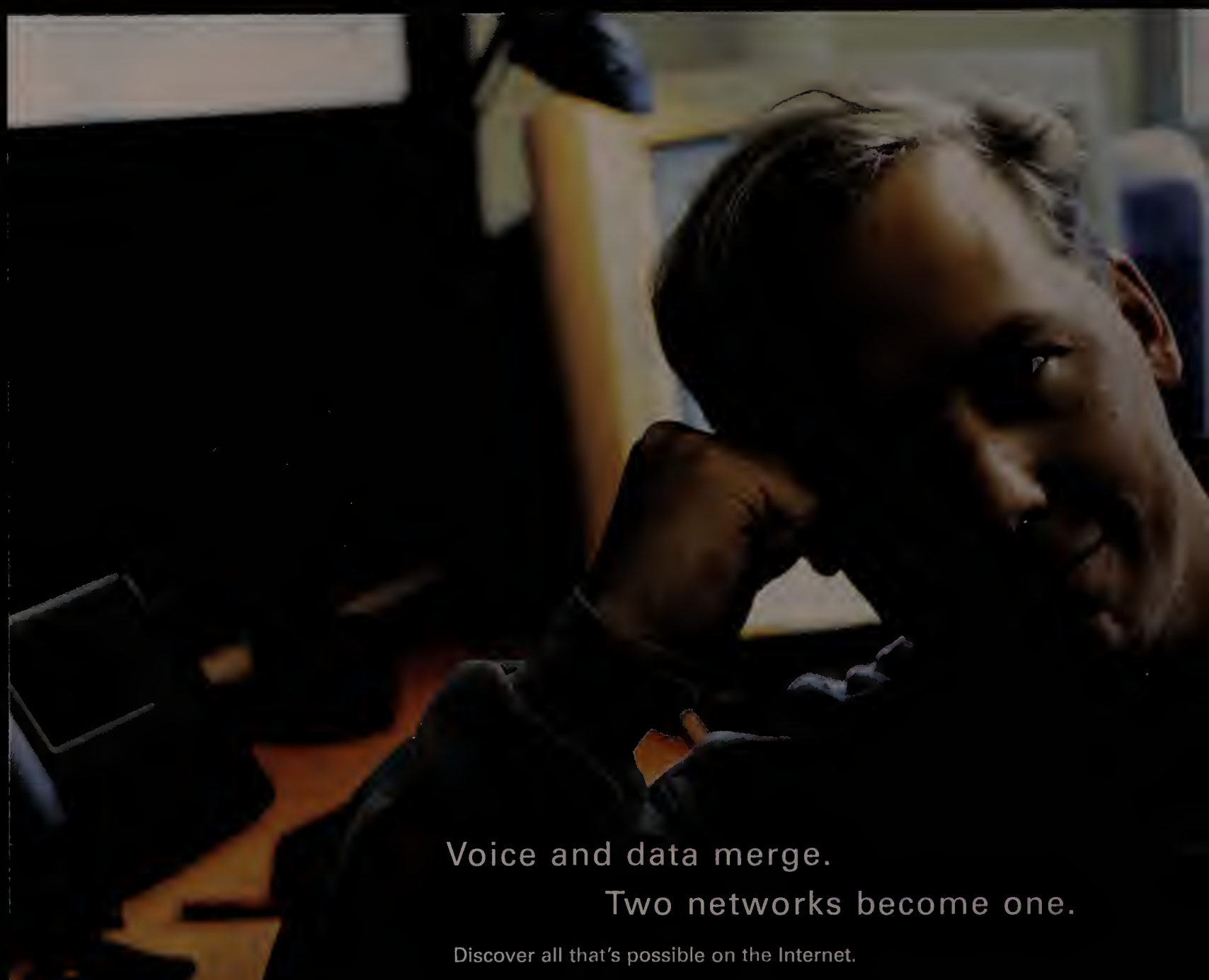
The experiences of Cisco and its customers show that the migration to IP telephony is possible and cost-effective. That is assuming customers make the necessary upgrades to their existing networks; conduct the migration in phases to allow for migration from (or co-existence with) legacy voice mail and other systems and allow time for training all the necessary staff members.

Once this is done, the rewards are high-quality voice calls; reduced support and lower management costs over time; and the ability to roll out advanced applications such as unified messaging and video-conferencing, which can vastly improve employee productivity.

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industry's Covisint are stymied because competitors won't reveal proprietary information about procurement methods. Nor can exchange members be uniform in mundane-but-expensive areas such as invoicing, inventory management and documentation, forgoing even those cost savings.

AMR Research, a Boston-based researcher of e-business strategies and technologies, estimates that 20% of the cost of goods sold, or about $450 billion, can be taken out of the global supply chain by using both public and private B2B exchanges.

Although they grab headlines, industry-based exchanges will never help the bottom line, because they can't target specific customers, impose business changes on a network of suppliers or be repositories of critical company data.

But companies that create and use private exchanges can drive real business efficiencies; that's what B2B e-commerce is about.

LENNY LIEBMANN

. . . And It's All About How You Relate to Others

BROAD MARKET labels can be useful in identifying emerging trends, but they can be misleading when it's time for your company's particular implementation. Business-to-business e-commerce, or B2B, is a prime example. It's a term that originally came about to distinguish business-to-business activity on the Web from consumer-focused initiatives, or B2C.

But any moderately perceptive observer will notice tremendous variation in the objectives — and therefore the technical architectures — underlying corporate B2B efforts. That's why I've come up with a taxonomy that's proved quite useful in planning and evaluating those efforts.

Basically, I divide B2B into three categories I call AFL: acquaintances, friends and lovers.

Acquaintances are other businesses that your company deals with on an ad hoc basis. They peruse your offerings, make buying decisions based on price and value and execute transactions. These buyers may differ from consumers in that they use purchase orders and set more stringent sale conditions, but in many ways, acquaintance-class B2B isn't actually that different from B2C.



LENNY LIEBMANN is an independent consultant specializing in the alignment of IT resources with business goals. Contact him at **llmann@home.com**.

Friends enter into more stable relationships. They may execute repeat/refill orders with some consistency. They may negotiate special volume pricing. In fact, one common sign of "friendship" is the existence of a formal contract covering terms, support and the like.

Lovers are your company's most strategic partners: key suppliers, major customers or prime distributors. Relationships with lovers are long term and offer sufficient perceived value to be worth considerable investments of time and money.

Why are these distinctions important? For one thing, they have a significant impact on technical implementations. It often makes sense for lovers to work out tight integration between each other's ERP systems; not so for acquaintances. Friends may fall somewhere in between, gaining access to a secure extranet site. Acquaintances may use the public Internet, while friends warrant a virtual private network. Lovers may go so far as to implement a private IP link.

These distinctions also give technologists and business managers a common language with which to discuss B2B initiatives and requirements. Are we trying to gain market share among acquaintances? Are we trying to turn them into friends? Are we trying to cut cost and time out of our interactions with lovers? Simply saying, "Let's do some B2B!" may not be sufficient to describe such objectives. This taxonomy's additional granularity provides much better insight into a company's real B2B goals.

A clearer understanding of B2B classes should also help vendors better understand the needs of their corporate customers. When they talk about "enabling B2B relationships," do they mean ad hoc dealings with acquaintances? Or more bonded relationships? Can vendors such as online marketplace developers really accommodate all three classes of B2B commerce? Or are they usually most appropriate for one particular class?

Most companies will have relationships and requirements that span the entire AFL spectrum. But to keep the scope of B2B projects under control, maintain alignment with business objectives and ensure the use of appropriate technology, IT organizations should develop a clearer understanding of B2B subspecies. I like AFL because the terms are immediately understood across multiple corporate cultures. You may choose to use a different model to draw your distinctions.

Whatever model you may ultimately decide upon, the key is to make sure that your technology implementations are relationship-appropriate. After all, you don't ask people to take blood tests just because they want to be your friends.

READERS' LETTERS

Resource-Hungry

AFTER READING the article "Old Ireland Tries New Hooks" [Business, April 23], I was wondering if you could suggest resources for IT placement companies in Ireland and for immigration issues.

Raju Kalidindi
Fingerhut Cos.
Minnetonka, Minn.

Editor's note: *You'll find a link to* Computerworld *resources regarding H-1B visas and immigration issues, as well as links to several Web sites offering information on employment in Ireland, at* www.computerworld.com/letters.

I WAS GLAD to see the article on how companies are retaining IT folks. When I managed a systems development group of programmers and analysts at a public university, our pay scales weren't very competitive with industry. Our client base was mostly stable, so we had to create variety. One tactic I used was to rotate responsibilities once a year, so that the most senior person supporting a client/office/project would move to another project as second in charge. The second in charge would move up to first in charge for that office, etc. Before we started doing this, some people had been on the same project or supporting the same office for many years. Their skills were getting stale, and their career paths were limited because of the practice of keeping knowledgeable people where they had the most experience. The newer folks were getting the new projects, and our experienced people felt a bit trapped. Using the rotation method, everyone was forced to learn new skills, train the person coming in behind him and keep his documentation up to snuff. We had much greater coverage after a couple of years because more people knew more about more projects, and the staff really liked it once they understood the way it worked and how much it benefited them and the organization.

Barbara Taylor
Management consultant
Silverado, Calif.

Getting Extreme

WHEN considering the economics of extreme programming ["Programming Gets Extreme," Page One, April 9], it's important not to ignore the hidden costs of traditional methodologies. We used XP in a 15-month project that, at its peak, involved two eight-member development teams. We found that programming productivity, overall, increased. We were able to assimilate new technologies and integrate new developers more quickly, minimize the impact of employee departures, better deal with requirements changes and improve predictability. In the short term, two programmers don't code twice as fast as one, but our experience shows that in the longer term, the increased levels of correctness and fitness for purpose that come from using XP result in less costly rework, faster time to market and lower overall cost to market. At the scale of the whole project, two programmers who follow XP discipline and program as a pair are more productive than two who follow a traditional document-centric methodology.

Alan Ewald
Southboro, Mass.

I RECALL A PAIR programming experiment in the late 1970s that achieved a 172% productivity gain and an error rate that was 0.1% of the normal rate, despite the additional programmer expense. But the concept was rejected because senior programmers would quit. This response is consistent with the results described by Lee Copeland Gladwin for U.S. organizations.

Randall Jensen
President/consultant
Software Engineering Inc.
Brigham City, Utah

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COMPUTERWORLD welcomes comments from its readers. Letters will be edited for brevity and clarity. They should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.



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JOHN GANTZ

How Will the Economy Affect IT Spending?

HAVE YOU NOTICED that there's a recession going on?

Actually, there is no recession — at least technically. After all, the gross domestic product is still growing. For a recession, you must have two straight negative quarters.

Last year, the U.S. economy grew more than 5%. But last week, the International Monetary Fund predicted that U.S. growth would reach only 1.2% this year. That's enough swing to create an *emotional* recession.



JOHN GANTZ is a senior vice president at IDC in Framingham, Mass. Contact him at jgantz@idc.com.

What does this mean for IT spending?

According to my colleagues in the Global IT Economic Outlook research program at IDC, it means a lot or a little, depending on what kind of spending you're talking about. Their analysis is based, in part, on what happened in the U.S. recession of 1991, the European recession of 1993 and the Asian crises of 1998.

It turns out that the economy is not the only persuader to IT spending. Major upgrade cycles (such as Windows 95), one-time events (Y2k, currency devaluations), deregulation and technology advances (the Web, 3G phones), may influence spending. But an economic downturn does impact IT spending.

The IT sector most tethered to the economy seems to be the PC market. This year, IDC expects U.S. spending on PCs to drop by a double-digit percentage, in part, because of double-digit growth last year. Yet the market for Intel-based low-end servers should rise by about as much as PCs fall — but for different reasons, namely e-business rollouts.

One the other hand, spending on IT services will plod along at about the same 10% to 11% that has been expected, although maintenance and support will be down and outsourcing will be up, balancing out each other.

So, here's the aggregate picture: If the U.S. economy doesn't get any better than it is now, IT spending growth for this year will be around 5%, or half what it was last year.

If you want to benchmark what's happening in your company against the U.S. average, consider the following:

■ Spending on e-commerce-related initiatives is still rising — by 25% this year, according to IDC's recent eWorld 2001 study. This stuff is too important to be stopped by a recession. The hardware to support these initiatives, such as servers and storage, remain in the purchasing queue.

■ Spending on long-term enterprise applications and projects is continuing, with particular emphasis on customer relationship management, for which software sales are booming. These are often multiyear projects that will only cost more if they are delayed.

■ Outsourcing is the high-growth area in IT services as companies try to cut fixed costs.

■ General infrastructure improvement stuff such as new PCs, new workstations, WAN equipment and Windows 2000 will get delayed. After all, we got a lot of fresh equipment right before Y2k.

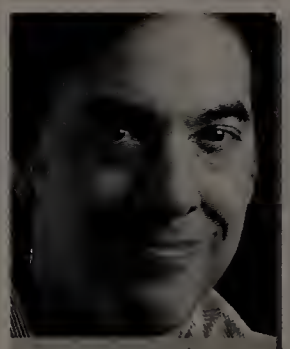
■ Staffing dynamics, but not job openings, will change. Expect fewer layoffs in the IT specialties than in, say, high-tech product management, but raises, signing bonuses and promotions may be curtailed or delayed. Companies will keep IT professionals rather than go through the agony of finding and hiring them when the economy turns around.

So, good luck. If you're new to the IT profession, this downturn will be unsettling. If not, remember that this has been a high-growth profession for 50 years, economic ups and downs notwithstanding. ◗

BILL LABERIS

In a Funk Over E-Commerce? Read 'Bill's Law'

IF YOU'RE FEELING a little confused about e-commerce these days, it's with good reason. After all, there's a growing body of evidence that the e-business advice, messages and cocksure predictions that have bombarded you for years need some rethinking.



BILL LABERIS is a consultant in Holliston, Mass., and former editor in chief of *Computerworld*. Contact him at bill@laberis.com.

Specifically, you and everyone else with a CXO title in your organization have been told to make the building and deployment of the e-business infrastructure an absolute priority ahead of everything else in anticipation of supporting the trillions of dollars of commerce that will be conducted over the Internet in just a few years. But we're nearing the midpoint of 2001, and the clicks aren't clicking like experts forecasted.

■ On the business-to-business front, the much-ballyhooed exchanges and Web-based marketplaces are desperately seeking customers. Even executives at major B2B software companies are said to be seriously doubting the future of these exchanges.

■ Further fueling these doubts is the halting adoption of XML, the lingua franca of the B2B world, as users cling to decades-old electronic data interchange (EDI).

■ *Computerworld* reported that Gartner Inc. dropped its estimates for B2B commerce by 2004 by a stunning $1.3 trillion, not exactly short money.

■ A Nielsen study found that online consumer shopping nose-dived earlier this year. But more revealing in the study is that consumers are increasingly using the Web to gather information to make purchases, albeit *off-line*.

■ The click-through rates of Web advertising (the rate at which page viewers click on ads for more information) are pathetically low, averaging less than half of 1% in some categories. DoubleClick, the leading firm that handles online advertising for companies and a bellwether for the health of online advertising in general, is swimming in red ink as losses widen.

It's not an encouraging picture of the e-business world, is it? And if you're among the thousands of IT managers in the midst of deploying an e-business infrastructure designed to support the organization in the coming years, you have to be a little worried. You were told, "Build it, and they will come." Well, what if they don't?

First, some of the negativity expressed in these and other statistics reflect the current economic downturn, to some degree. But what we're seeing more than anything else is the manifold expression of Bill's Law (my rule), which states that nothing in the IT world happens as fast as the pundits, experts and analysts claim it will. Nothing. But eventually, it does.

Bill's Law exists because organizations are rich in legacy technology, legacy people and legacy thinking. There is perhaps no more critical lesson for you to help the executives in your organization learn than this law.

Consider the failure of exchanges to take off as predicted. Despite the very obvious productivity and efficiency advantages that XML offers, users stick stubbornly to EDI even though there are excellent EDI-to-XML translation packages on the market. They do so because it's comfortable for them, using the fact that there are too many competing XML standards as an excuse. That's true, but not within specific vertical markets, which is how exchanges are aligned.

In the B2C world, only online travel services (mostly airline tickets) and auctions (mostly eBay) have come close to living up to volume expectations. I predict that people will never reverse purchasing habits that took a lifetime to develop. Instead, B2C will flower only when most buyers are from a generation that grew up with PCs from Day 1, which would be today's teenagers. The Nielsen data suggests that you need to make your sites more usable for gathering product information rather than for product purchasing, at least for now.

If nothing else, this is a very good time to work with executives to recalibrate e-commerce expectations and adjust IT strategies accordingly. ◗

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fig. 1.1: Storage screaming for your attention (metaphor)

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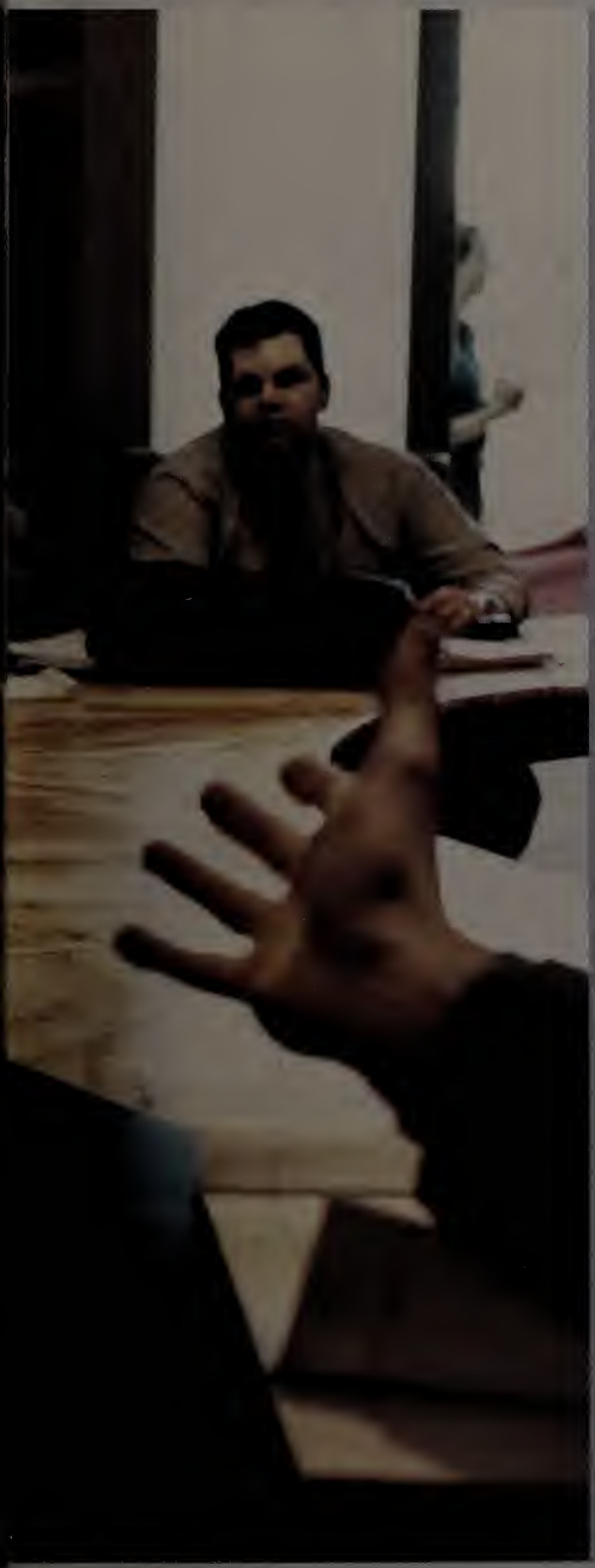
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MARKET FACT

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If It Sounds Too Good . . .

THE IDEA behind "MasterCard Sets Plan for IP-based Global Payment Network" [*Computerworld.com*, April 23] sounds great, but not until we can secure personal data on servers accessible from the Web.

Ken Flint
Smithtown, N.Y.

Security Challenge

IPSEC IS NOT just a subset of IP Version 6 ["IP Insecurity," Technology, April 16]. IPSec can be used with either V4 or V6. It authenticates and (optionally) encrypts individual datagrams. Upgrading to IPV6 doesn't require all computers to convert at once. Upgraded systems will contain both V4 and V6 and be capable of communicating using either protocol. This doesn't mean that migrating to V6 is easy. The biggest inhibitors are getting V6 into desktop operating systems and changing the source code of applications that operate across a network. This isn't a small job. Remember Y2k?

Sidnie Feit
Chief scientist
The Standish Group International
Hamden, Conn.
Author of *TCP/IP* (Signature Edition, McGraw-Hill)

ADVANCED security features will become the standard only when they are easier to implement than to ignore. There's a growing realization on both sides of the fence that security is good as long as business needs are met. After all, the most secure computer in the world is a laptop locked in a safe with the battery removed, the safe encased in 12 feet of concrete, and the entire thing sunk to the bottom of the ocean. This computer isn't useful for much of anything, but boy, is it secure!

Gregory T. Smith
Dow Chemical
South Charleston, W.Va.

Breaking Into Reservations

THE CHART accompanying the story "Airline Site-Backed Study Attacks Reservation Fees" [News, March 19] states, "The capital costs of creating a rival computer reservations system present a nearly insurmountable barrier to entry for any would-be competitors." Radixx is the first to replace a legacy reservations system (Amadeus) at an airline (Air Iceland). Air Iceland President Jon Karl Olafsson indicated publicly that he's saving in excess of $1 million per year because of the change. We were able to create the new system by leveraging state-of-the-art and commodity components and tools whenever possible. Instead of using expensive proprietary communication links, the airline's reservation agents, stations and travel agents connect via inexpensive Internet connections.

Ron Peri
Chairman and CEO
Radixx Solutions International Inc.
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BUSINESS

DOT-COM DUDS

The labor crunch is steadily easing as dot-com refugees make their way back to traditional firms. But IT managers say many of the shining stars of the e-commerce boom aren't measuring up in the corporate world. ▸ 38

HIPAA CHECKUP

IT departments in health care organizations are preparing for next year's debut of a new federal law that will affect electronic transactions and tighten privacy and security of medical records. But the tough part is yet to come. ▸ 44

ALIGNING IT AND BUSINESS

As technology moves from the back office to the forefront of e-business, the alignment of business and technology is becoming more crucial. A professor at the Stevens Institute of Technology has developed a methodology companies can use to assess the maturity of their business/IT alignment. ▸ 46

BALANCING ACT

IT consulting can provide a healthy work/life balance, but it can also mean painfully long hours and extensive travel. Find out how two consultants approach their work. ▸ 49

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E-CLASSROOMS FOR GLOBAL EXECS

Rolling out a global enterprise resource planning system presents companies with plenty of technical challenges. But providing executives outside the U.S. with the technical and cultural training they need to make it work poses a whole separate set of problems for companies to address. 48

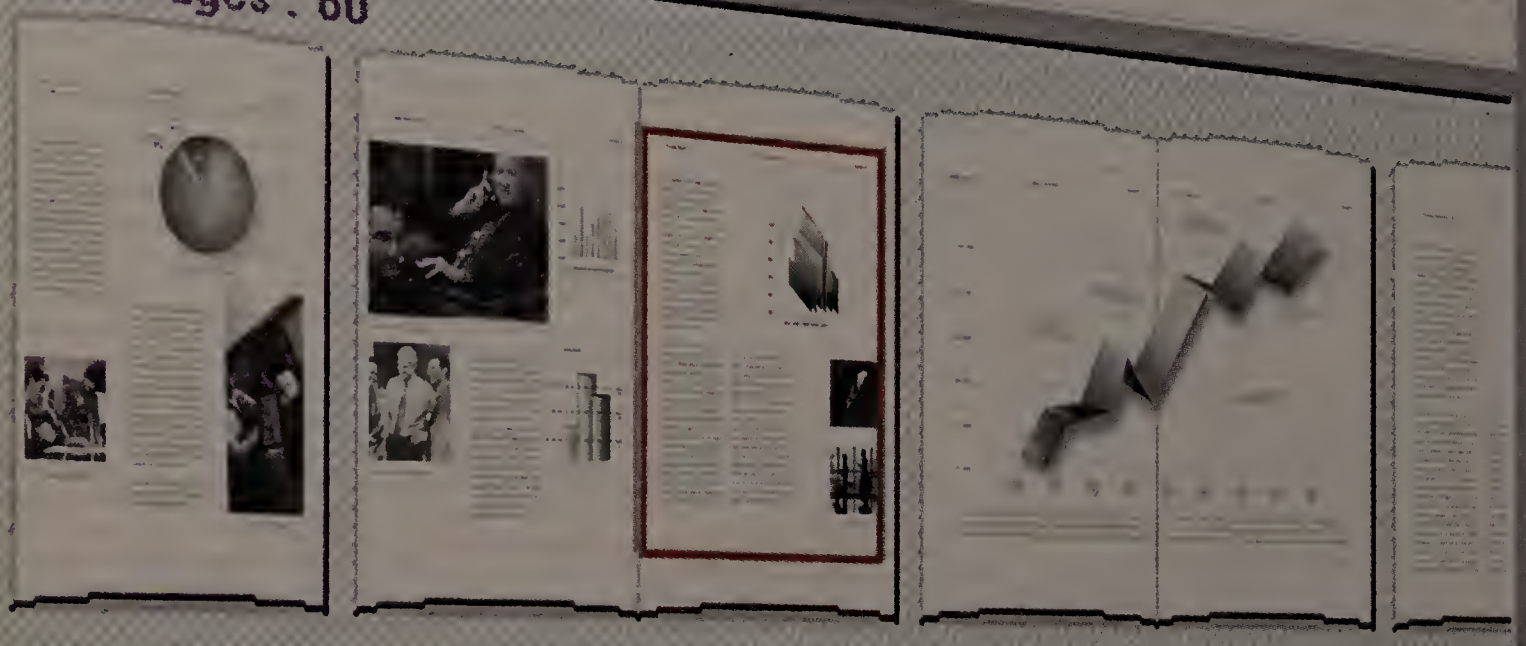


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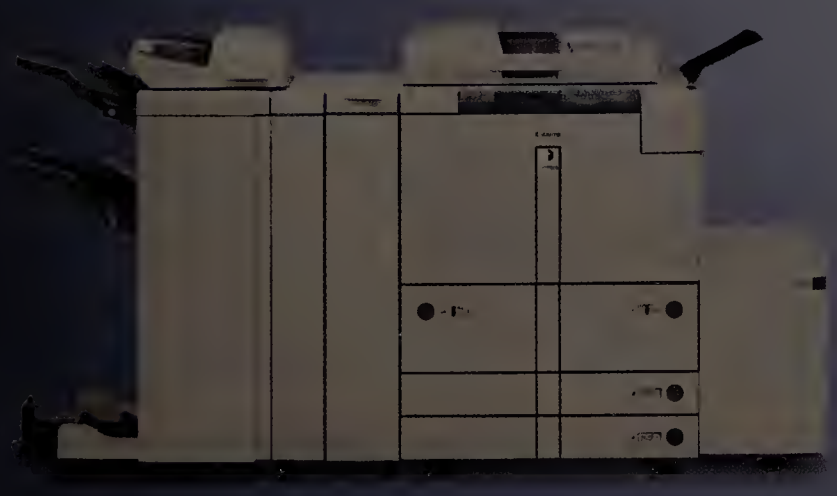


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Dot-com Bust a Mixed Bag for IT Staffing

BY LEE COPELAND GLADWIN

Traditional companies are having an easier time filling long-empty IT staffing positions as former dot-com employees return to the corporate fold. But corporate IT managers report that not all of those returning are the cream of the crop.

"We figured people coming from dot-coms would be top-end and that we'd be working with the latest and greatest," said Bryant Fong, MIS manager at Advanced Research Laboratories, a shampoo and personal care products manufacturer in Costa Mesa, Calif. "When we interview them, their mentality is, 'I can learn as I go.' But we have rules and procedures that we have to follow."

Others also cite the free-wheeling nature of young technology workers who got their start in Internet companies, many of which were known for nontraditional office environments and work habits. Though willing to go the extra mile, these developers aren't accustomed to following structured methods for software development.

"There's a lot of innovation among some of the dot-commers," said Jim Hughes, CIO of Cleveland-based National City Corp., a bank with $92 billion in assets. "But there's also a kind of hacker mentality."

Hughes manages an IT staff of 1,300 and has hired a dozen or so workers from closed dot-coms in recent months.

"We've had to make sure that these people can deliver the kind of stability and code that they perhaps didn't before," he explained. "We're transferring large sums of money, and it has to be right."

The Right Stuff

Internet-related job cuts in April totaled 17,500 — an increase of more than 80% from March, according to a study released last month by Chicago-based outplacement firm Challenger, Gray & Christmas Inc.

"We had a full-time recruiter working for IT last year," said Ergin Uskup, CIO at United Stationers Inc., an office supplies and equipment wholesaler in Des Plaines, Ill. "We've discontinued that service because the hiring process is less difficult."

Uskup said he's also receiving an influx of résumés from systems integration firms such as Chicago-based MarchFirst Inc., that conducted development work for dot-coms. But Uskup said he looks for the right skills instead of dot-com experience.

Indeed, dot-com and Internet integration experience doesn't ensure a good cultural or skills match.

Lorraine Balum, IT hiring manager at Allstate Insurance Co. in Northbrook, Ill., agreed with Uskup.

"We've had more candidates contacting us, but they're not necessarily the right fit, and some of the skills sets are not aligned to what we're looking for," she said.



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Banks Start Looking at Web Site Insurance

BY MARIA TROMBLY

The recent online banking explosion has offered banks new revenue streams, but those streams can bring new risks. Insurance companies are finally beginning to look at the risks and offer coverage.

Several insurance companies have begun offering packages to banks that cover risks specifically associated with their online operations, according to Richard Roby, an insurance analyst at Needham, Mass.-based TowerGroup.

About 17% of U.S. households now use Internet banking sites, according to Richard Bell, a banking analyst at TowerGroup. "That represents a relatively important part of some institutions' business," he said. "Protecting that business process makes sense."

Problems that can plague online banking sites include denial-of-service attacks and Web site defacements, said Tom Bartolomeo, senior vice president of information security at Charlotte, N.C.-based First Union Corp.

Other problems include transmitting viruses and privacy violations, added Emily Q. Freeman, practice leader for e-business risk solutions at New York-based insurance broker Marsh Inc., which began offering insurance products for Web sites in late 1999. "Traditional insurance policies may not really adequately cover the type of risks that are associated with Internet technology," she said. "The financial bonds banks buy are geared at traditional types of embezzlement or traditional types of computer fraud."

Each of these Internet-related banking risks has two parts: the damage done to the bank itself through the loss of business or damage to reputation, and the damage done to customers, or partners, explained Gina Juhnke, product manager at Mayfield Village, Ohio-based Progressive Casualty Insurance Co. For instance, if a company can't access its funds and loses a business opportunity, it may hold the bank responsible.

Insurance prices depend on the size of the bank and the functionality of the Web site, said Juhnke. For example, additional liability insurance for a fully transactional Web site at a small community bank with $250 million in assets could run $5,000 to $15,000 per year.

How much insurance does a bank need for its online service? It depends on the bank, said John Hall, a spokesman for the American Bankers Association in Washington. "There's a growing trend for this type of coverage," he said, but added that the usefulness varies from bank to bank.

First Union might be a good candidate for one of those new policies, Bartolomeo said. "But there's no history yet. How do you go about enforcing these contracts? If somebody's Web site is defaced, how do you prove what that's worth to your company?"



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WORKSTYLES

The Blue Light Is Back Online

Interviewee: Ghufran Ahmed, vice president of engineering
Company: BlueLight.com LLC, the Web site for Kmart Corp. (Although majority-owned by Troy, Mich.-based Kmart, BlueLight.com is a separate company.)
Main location: San Francisco, above the wax museum on Fisherman's Wharf. "You can smell the seafood from Grotto's across the street."
Tenure: Since January 2000, "right after the company started in December 1999."
Number of IT employees: 70
Number of employees (end users): 200
Recent IT initiatives: Three site relaunches in June, October and March.

"In June, it was the whole infrastructure and all the back-end systems for order fulfillment and e-commerce.

"In October, it was geared to the holiday season. And in March, we added more functionality and products and changed the look and feel. We added the whole Blue Light Special area, where we have daily specials."

Did Kmart's new advertising campaign put any pressure on your relaunch deadline? "Definitely. Kmart is spending a lot on its 'The Blue Light is back' mantra, and part of that is advertising BlueLight.com. So we had to make sure the relevant parts of the site were ready to go when the national ad campaign launched in April."

What's your relationship with Kmart's IT department? "We don't share any systems with Kmart, although we do exchange information and are working on more integration. For example, the Kmart in-store kiosks are running our BlueLight application."

Training: "We're allocating about 80 hours a year per employee."

Employee reviews: "We're just now putting in a formal annual review process, and we have a 90-day review for new employees."

Bonus programs: "There are no IT-specific bonuses, but we get some spot bonuses, and everyone gets stock options."

Dress code: "It's pretty casual: your typical San Francisco dot-com environment, with a lot of creative people."

Workday: Standard hours are 9 a.m. to 6 p.m. "We have flextime, and on some projects, we put in overtime. It was nonstop for 48 hours for the October launch and in March, there was a 24-hour stretch.



What It's Like To Work at...

"It's still pretty grueling. We used to say, 'Retail is detail,' and e-tail is even more detail."

Must people carry beepers? Cell phones? "Yes. Everyone has cell phones, and some have beepers also. We can access our e-mail via our phones."

Free refreshments: "Calistoga [sparkling water], sodas, a lot of chocolate, Doritos, Chex Mix. And it's California, so there's an emphasis on healthy stuff."

Little perks: "We have negotiated parking rates with some of the garages in the area, and that makes life much easier in San Francisco, especially in Fisherman's Wharf. We get cell phone discounts and 10% employee discounts on the Web site and in any Kmart store, and we just added a laundry service.

"There are lots of toys around, like a motor-powered miniature Volkswagen. The [human resources] department has been good about making sure that it remains a good environment to work. It's a very hip-hop place."

Last companywide/department perk: "A barbecue on our balcony on a sunny afternoon to celebrate our relaunch."

The last word: "For us, the dot-com culture isn't dead. We are a much bigger company than when we started, and of course, budgets have tightened.

"We are being a lot smarter about spending money. Last year, [the attitude] was, 'Get up and running and spend the money.' This year, we're more focused on profitability and cost-effectiveness."

– Leslie Jaye Goff (lgoff@ix.netcom.com)

PAUL A. STRASSMANN

A Deal Gone Bad?

FOR YEARS, J.P. Morgan was the most intensive private-sector user of IT. It was spending more than $75,000 on IT per employee, or almost 40% of what it spent on salaries.

Given that J.P. Morgan has that much computing power, I was surprised to hear that this venerable firm — the onetime lead banker of American industrialization, the firm that saved the U.S. Treasury from default in 1895 — would cease being independent and would merge with Chase Manhattan. What really got my attention was the fact that much of Morgan's IT was outsourced beginning in 1996, whereas Chase's culture values IT as a homegrown competitive advantage.

How well has that outsourcing — a seven-year, $2.1 billion deal to a consortium led by Computer Sciences Corp. (CSC) — served Morgan? Let's look at the ratio of operating expenses to revenue. Operating expenses, reported as "noninterest costs," include such costs as administrative overhead, IT expenditures, outsourcing costs, consultants and depreciation.

As the chart (below right) shows, there was an alarming growth in the ratio from 1990 to 1994. Management became concerned and was looking to cut costs. Meanwhile, rapidly mounting IT costs reached the unprecedented level of more than 30% of operating expenses.

So Morgan called in some big-name consultants, who told executives that their hodgepodge of unintegrated systems could be best tamed by outsourcing IT to a consortium of firms that would be expected to work together. In due course, a four-company alliance led by CSC landed the job.

This landmark deal was heralded with publicity comparable to what I have heard in every failed outsourcing situation where the real motive was cutting costs: "The real impetus for the project is to help [Morgan] to retain its technology edge, to deliver better services to end users and to free up internal resources to build new applications."

Sure!

What really happened will always be a matter of conjecture, but the operating expense-to-revenue ratio didn't budge. Instead, two years later, it shot up to unprecedented levels.

My calculations show that even though Morgan's IT per-capita costs were astronomical by any standard, there was no way to restore the critical financial ratio to its prior levels by merely outsourcing one-third of the IT budget. Confusing the matter further, the only published claim of savings by the outsourcers was a $28 million cut in IT costs in the contract's first year, only 0.6% of operating expenses.

The much-hoped-for infusion of advanced technologies from the outsourcing consortium didn't materialize, evidenced by the fact that Morgan proceeded to hand over to the Bank of New York its investment management accounting systems for Europe, which was a core competency application.

Integration didn't happen, either. For example, IT and telecommunications operations are run by the U.S. outsourcers, but not in Japan, where J.P. Morgan has partnered with IBM.

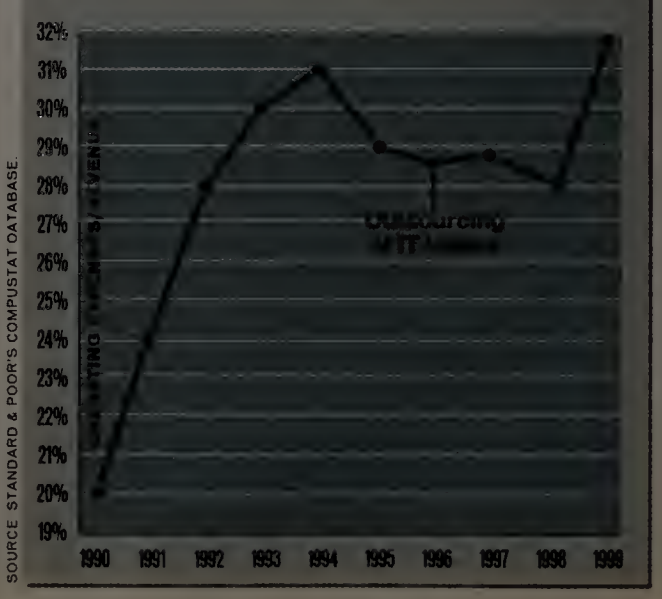
I don't know how Morgan's IT operations will fare after merging with Chase. My tracking of Chase's performance shows that it has been able to achieve reductions in the operating-expense-to-revenue ratio, which is likely the direction it will take to justify some of the price it paid for Morgan.

There's no rationale for a major bank to outsource much of its IT except in unique situations. There are no economies of scale when you deal with an IT budget of more than $3 billion, the consolidated IT budget of the bank subsequent to the merger. Instead, there's only organizational confusion when accountability and simple command-and-control structures are easily compromised. ◗

Strassmann (paul@strassmann.com) has always followed the principle of outsourcing risky innovations and keeping tight control over ongoing operations.

The J.P. Morgan Story

J.P. Morgan's operating expenses as a percentage of revenue soared in the early 1990s, then rose again in 1999, three years after the company outsourced its IT operations.



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Getting A Grip On HIPAA

A new law governing the **privacy, security and electronic transmission** of health care data is rippling through the industry, and IT is playing a key role in the changes. By Amy Helen Johnson

THE IT STAFF at Loma Linda University Medical Center understands the serious consequences of reading patients' medical records without authorization and otherwise violating patients' privacy. In anticipation of the medical privacy regulations that will be enforced by the Health Information Portability and Accountability Act (HIPAA), Loma Linda is operating under strict new privacy rules, says Alvin Siagian, the center's information security administrator. Some IT staffers at the Loma Linda, Calif.-based hospital have been fired for bypassing audit trails or looking up their friends' and families' records, he says.

"We have to teach our IT staff to keep their curiosity in check," Siagian says.

In the face of an October 2002 compliance deadline for HIPAA's first phase — standardizing data formats for electronic transactions — IT leaders at health care organizations have been managing many changes in their departments. They have implemented new policies, like Loma Linda's strict privacy rules, and learned early lessons about best practices, such as when to involve IT personnel on HIPAA projects and how to cost-effectively implement HIPAA compliance projects.

Industry officials say that so far, HIPAA projects haven't been a large burden on IT departments, and their efforts are paying off with the beginnings of a privacy-focused cultural change within their companies. Officials are also confident that IT and the rest of their organizations will be ready when next year's deadline arrives for implementing standards and formats for electronic transactions. But their toughest challenge — giving patients access to their records — is yet to come, according to industry analysts.

After health care organizations finish their Phase 1 work, they face an April 2003 deadline for implementing privacy and security provisions, although Health and Human Services Secretary Tommy Thompson says the rules will be modified before the deadline. Provisions governing security have yet to be finalized.

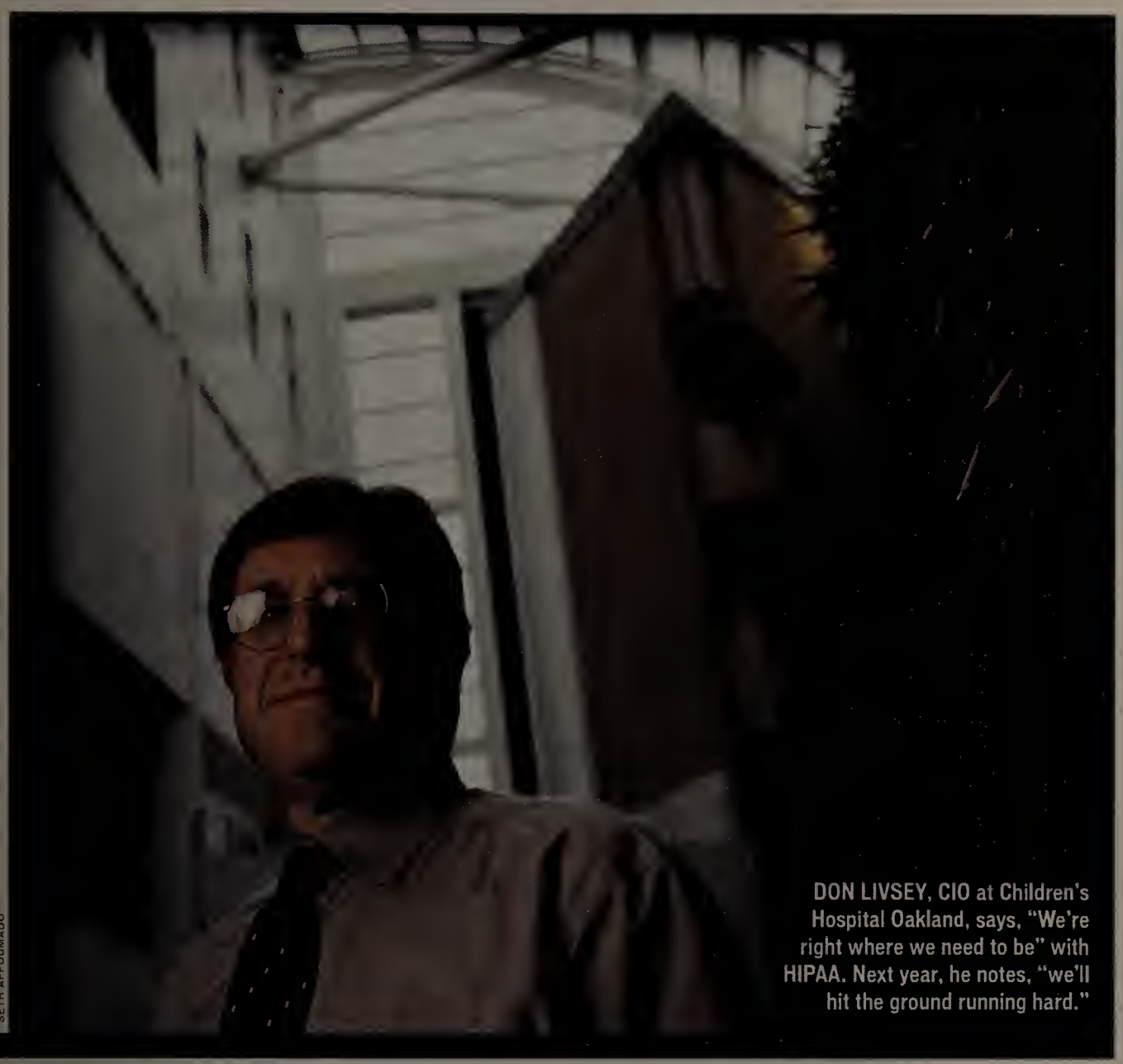
Matt Duncan, a research director for health care at Gartner Inc. in Stamford, Conn., says organizations that have yet to conduct Phase 1 risk assessments and hold employee education and awareness sessions risk missing next year's deadline. For the most part, he says, the health care industry needs to put more effort into its compliance projects. A Gartner survey of 225 health care organizations that was conducted in February revealed that 65% have general HIPAA education programs in place and 50% have begun risk assessments. Gartner suggests that organizations should be nearly done with their general awareness campaigns, most of the way through the assessment phase and already working on their return-on-investment analyses.

Yet IT leaders say they're on track for the first phase and they're proceeding cautiously on the privacy and security work until the federal regulations are firm. "We don't want to overreact," says Don Livsey, CIO at Children's Hospital Oakland in Oakland, Calif.

As for the data formats, Livsey says that two years is enough time to do the work and that he's comfortable with the progress his department has made. "We're right where we need to be," he says. The hospital has been examining the regulations for a year, analyzing what it needs to do.

Right now, Livsey says, staffing isn't a big burden. But next year, he'll have to commit funds for the necessary personnel and technology to bring the hospital into compliance. "We'll hit the ground running hard in 2002," he says.

Livsey says he hasn't completed his cost estimates for HIPAA compliance, but he expects them to be less than $10 million. Duncan says that's in line with data from Gartner's survey, in which only 27% of respondents had estimated their compliance costs, with an average of more than $7.5 million. But, he



SETH AFFOUMADO

DON LIVSEY, CIO at Children's Hospital Oakland, says, "We're right where we need to be" with HIPAA. Next year, he notes, "we'll hit the ground running hard."

says, that number is far from firm and the average cost could prove to be more than double that amount.

Larger organizations will face higher costs because they have more work to do. For instance, Oakland-based Kaiser Permanente Health Plan Inc., a 101,400-employee nonprofit health maintenance organization with 8.2 million members, owns 35 hospitals and medical centers and 423 medical offices across the country that it must bring into compliance with HIPAA. Mary Henderson, national director of Kaiser's HIPAA program, has been directing a 50-person, full-time HIPAA team since March last year.

Henderson says most of Kaiser's 4,000 IT personnel aren't involved in HIPAA-related work because the new law doesn't yet affect them. Her strategy is to engage site-based IT personnel in compliance efforts when their participation is needed, such as when the systems they work on must be modified. So far, local IT personnel with responsibility for claims, membership and billing systems have gotten involved in Kaiser's first-phase compliance efforts.

At Group Health Cooperative, an HMO in Seattle, planned upgrades to legacy systems play a large part in determining the HIPAA implementation schedule, says Gary R. Gray, Group Health's HIPAA project director. One strategy he's found successful for lowering costs, he says, is to piggyback the changes for HIPAA compliance onto an existing project. Group Health's IT organization bundled Phase I requirements onto an upgrade of the HMO's registration system. A second project involving medical records will expand to include work that will meet HIPAA's privacy and security rules, Gray adds.

Although HIPAA has a strong technology component, he says, IT organizations can't rely on technology as the only solution. "HIPAA is about developing a culture in your organization," says Gray. And IT leaders are helping develop that culture through means ranging from holding seminars to rearranging work spaces.

Gray says changing Group Health's culture starts with education. The HMO has a companywide HIPAA oversight committee, of which he is a member. The first step was to teach departmental leaders about HIPAA's rules and ramifications, he says. Now the effort is moving down to departmental personnel through lunchtime brown-bag presentations. "We're trying to get as many audiences as we can," Gray says. "The audience is never too small and never too large."

Abbis Kafi, chief technology officer at Dallas-based Claimsnet.com Inc., a claims-processing clearinghouse, says his department has made so many changes throughout the company that everyone is aware of HIPAA. He's mandated that everyone use a screen saver with a 15-minute timeout so that any potentially private information isn't left on display when people are away from their desks. Not every employee has access to confidential information, but he's not taking any chances, Kafi says. He's even gone so far as to reposition employees' desktop computers so visitors can't see the screens.

Although such changes have placed an extra burden on Kafi's staff — someone had to go around to every workstation and install the screen-saver utility, for example — it has helped make his colleagues realize that everyone at the company is responsible for compliance with HIPAA. "We're actually helping to improve company communication," he says.

Although IT leaders are putting time and resources into HIPAA today, Gartner's Duncan says the largest headache will come in the future, when health care organizations implement the patients' rights portion under the privacy phase. This section gives patients the right to see their medical records and correct any mistakes in them. "It's not just a technology challenge," he says. "It's a process challenge." IT leaders must not only figure out a secure way to allow access for individuals who aren't employees or regular users of their computer systems, but they must also implement a process that notes errors and then reviews and corrects them.

Ultimately, says Duncan, HIPAA will be good for the health care industry. The law marks an opportunity to transform an organization's business processes, he says, which will save companies money and offer new opportunities for delivering health care.

IT leaders say they see the benefit of that transformation. Loma Linda's Siagian says the industry needs the efficiency and cost savings brought about by HIPAA. "Our modus has been to save patients, period," he says. "But if we continue doing that without actually helping our business side, someday we will have problems." ◗

Johnson is a Computerworld *contributing writer in Seattle.*

A HIPAA Primer

Former President Clinton signed ***HIPAA*** *into law on Aug. 21, 1996. The U.S. Department of Health and Human Services has led a process to define the exact regulations that health care organizations must follow to comply with the new law.*

Organizations affected by HIPAA include health insurers, health care clearinghouses and health care providers. Business partners of these organizations that handle individually identifiable patient information must also comply with the law.

HIPAA has the following major provisions:

ELECTRONIC TRANSACTIONS

The law establishes standard data content and formats for submitting electronic claims and other administrative processes. Compliance for most organizations is required by October 2002.

PRIVACY

Organizations must establish policies on who gets to see individually identifiable patient information and under what circumstances. HIPAA covers electronic and paper patient records and oral communication and gives patients rights and control over their information. The regulations are complete, but the Bush administration has said it will modify some of them. Compliance is required by April 2003, but small self-administered health plans have an extra year.

SECURITY

The law requires organizations to define clear procedures to protect patients' privacy, designate certain individuals to monitor privacy practices, and hear patients' complaints. It also outlines penalties for misuse of patient information. These regulations aren't finalized.

– Amy Helen Johnson

MORE ON HIPAA

► For a full text of the Health Insurance Portability and Accountability Act of 1996, visit the U.S. Department of Health and Human Services Web site: **http://aspe.hhs.gov/admnsimp/pl104191.htm**

Measuring Alignment

An IT management professor has developed a new methodology to help companies assess the maturity of their IT/business alignments.

By Peter Buxbaum

As business and technology have become increasingly intertwined, the strategic alignment of the two has emerged as a major corporate issue.

Not that this is a new subject. In fact, the strategic relationship between business and information technology has been chronicled as far back as the 1970s, when Harvard Business School Prof. Richard L. Nolan expounded his "stages theory" of the business/IT relationship.

But the emergence of IT from the back room to the forefront of e-business brings the alignment issue under the spotlight like never before. And as the economy softens, the potential efficiencies and competitive advantages afforded by technology become all the more crucial.

Now, Jerry Luftman, executive director and distinguished service professor for the graduate information systems programs at the Stevens Institute of Technology in Hoboken, N.J., has added a new wrinkle: a methodology that enables companies to self-assess the maturity of their business/IT strategic alignments.



Jerry Luftman

By referring to the characteristics of five maturity levels within each of six strategic categories (see chart), Luftman contends that companies can generate numeric scores that reflect the maturity of their alignment.

Luftman points to Bristol-Myers Squibb Co. as a firm that has enhanced its business/IT alignment in recent years. The New York-based pharmaceutical giant has established an IT review board of IT and non-IT executives to lead the strategy and planning processes, identify opportunities, define priorities and track the progress of IT projects.

Luftman says his methodology was validated through studies of 25 Fortune 500 companies during the spring and summer of last year. Now, thanks to new sponsorship by The Conference Board Inc. in New York and the Society for Information Management in Chicago, Luftman is surveying hundreds of executives, primarily at Fortune 1,000 companies, with the aim of assembling an ever-expanding repository of benchmarking information.

"The participants need to be executives both from the business and the IT organizations," he says. "We look to have at at least six executives from each firm."

Will this be useful? Few will contradict Luftman's insights. The question is whether the assessment effort represents the best use of a CIO's time.

The Luftman Model

Jerry Luftman's five levels of IT/business alignment:

LEVEL 5: Optimized process
Communications: Informal, pervasive
Competency/value: Extended to external partners
Governance: Integrated across organization, partners
Partnership: IT and business co-adaptive
Scope and architecture: Evolve with partners
Skills: Education/careers/rewards across organization

LEVEL 4: Improved/managed process
Communications: Bonding, unified
Competency/value: Cost-effective; some partner value
Governance: Relevant process across organization
Partnership: IT enables, drives business strategy
Scope and architecture: Integrated with partners
Skills: Shared risk, rewards

LEVEL 3: Established focused process
Communications: Good understanding
Competency/value: Some cost-effectiveness
Governance: Relevant process across organization
Partnership: Process driver; IT seen as asset
Scope and architecture: Integrated across organization
Skills: Emerging value service provider

LEVEL 2: Committed process
Communications: Limited understanding
Competency/value: Functional cost efficiency
Governance: Tactical at functional level, occasionally responsive
Partnership: Process enabler; IT emerges as asset
Scope and architecture: Transaction (e.g., decision-support system)
Skills: Differ across functional organizations

LEVEL 1: Initial/ad hoc process
Communications: Business, IT lack understanding
Competency/value: Some technical measurements
Governance: No formal process
Partnership: Conflict; IT a cost of doing business
Scope and architecture: Traditional (e.g., accounting, e-mail)
Skills: IT takes risk, gets little reward; technical training

Roy Nicolosi, CIO at the Insurance Services Organization (ISO) in New York, says he plans to use Luftman's methodology to assess the ISO's four separate business lines.

"We hope to find good measurements to aid in the comparison of the business units with a balanced scorecard," Nicolosi says. A balanced scorecard is a methodology that's designed to track long-term strategic performance by measuring progress against discrete business goals.

Nicolosi also says Luftman's methodology may come in handy when evaluating potential acquisitions. For example, the relative alignment of a potential acquisition with the prospective parent organization can aid in deciding whether to integrate the acquired company into the umbrella organization or to leave it as a standalone entity.

But Chuck Emery, CIO at Horizon Blue Cross/Blue Shield of New Jersey in Newark, doubts whether Luftman's numeric scoring allows for effective comparison. "The problem is whether metrics can be developed that can be used across different organizations," says Emery, who's mulling whether to try Luftman's system. "The evaluations call for many qualitative judgments, so that the assessment is related to the subjectivity of the evaluator."

For Emery, the problem is finding metrics that travel well across organizational boundaries. "As long as I'm the one doing it, the measurement may be consistent," he says. "But intergroup comparability becomes difficult."

In many respects, alignment boils down to the effectiveness of the interpersonal relationships between business and IT managers. Effective IT leaders, among other things, must be privy to senior management's tactical and strategic plans, according to Luftman. They must also be present when corporate strategies are discussed.

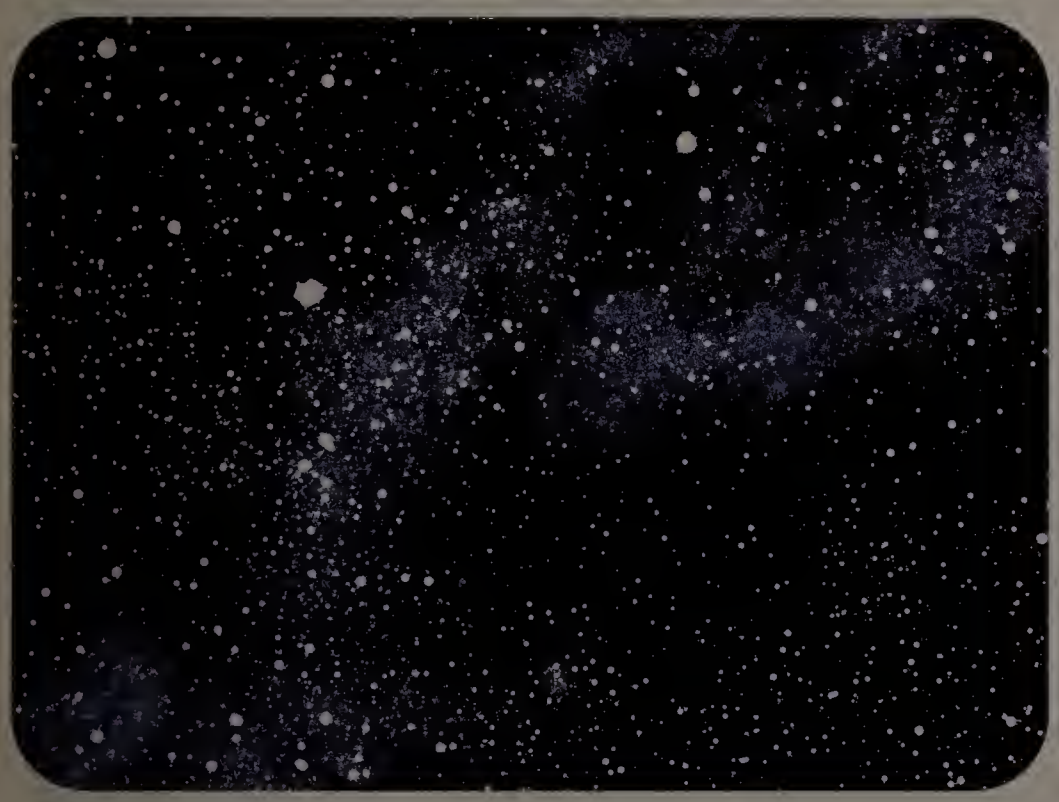
"It's all a question of whether you're invited to sit at the table or out near the kitchen," says Nicolosi.

"It's not a bad methodology, as these things go," says Bruce Blitch, CIO at Tessenderlo Kerley Inc., a Phoenix-based chemical company. "In fact, it's probably closer to the mark than anything I've seen before." Still, he advises CIOs not to put too much faith in tools alone. "Instead, learn the craft of making and maintaining relationships."

Blitch sees the art of persuasion as more important than numbers in his job. "Whatever we do as CIOs needs to make sense to the business," he says. "But making sense comes down to contributing to a vision shared with your management peers."

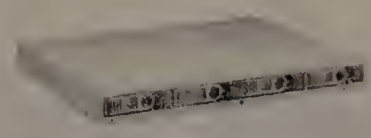
Buxbaum is a freelance writer in Elizabeth, N.J. Contact him at pab001@aol.com.

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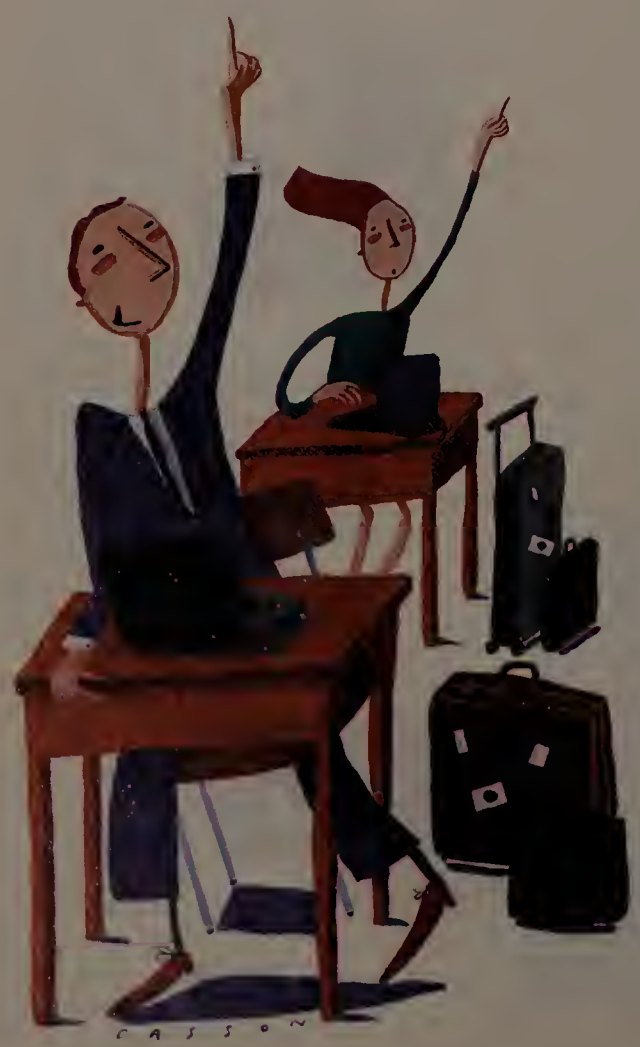
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EXEC ED ON FOREIGN SHORES

IT workers on foreign assignment are usually too busy with the tasks at hand to worry about their continuing education. That's why e-learning is becoming essential for them. By Kym Gilhooly



SOPHIE CASSON

FOR IT PROFESSIONALS on assignment around the world, the pursuit of executive education for career advancement is characterized by compromise and complexity.

The task is likewise complicated for U.S.-based companies that need to deliver high-level education and training to their IT workers in offshore locations. What works in the U.S. doesn't necessarily fly in Poland, Brazil or France.

International Paper Co., which is rolling out SAP R/3 to manufacturing sites worldwide, can attest to that. The company is currently wrapping up a pilot in England to establish a European best-practices team. It will next roll out the enterprise resource planning technology to its operations in Poland and Russia, says Russell Giddings, manager of business process redesign at the Purchase, N.Y.-based manufacturer. Giddings sends project management teams from the U.S. to these countries to implement R/3.

When these top IT workers need additional SAP training abroad, they primarily turn to SAP AG's Web-based programs. Much bigger challenges come with educating these workers on country-specific requirements so they can customize R/3 to each implementation, according to Doug Turner, IT director at International Paper's European operations.

"Across Europe, reports that have to be generated for one country are completely different than the country next door," says Turner. "To develop European best practices, our American team of business/IT people have to get educated on different regulations." That means localized training on fiscal, payroll, tax and reporting requirements for each country in which International Paper has facilities.

In addition to educating what it calls its business/IT workers on high-level foreign business practices, International Paper increasingly requires these workers to attend executive meetings, such as the electronic summit that the company hosted in December in Europe. That summit brought together senior business and IT professionals working in the area to educate them on the company's plans for e-commerce.

"It's critical when establishing best practices for worldwide initiatives that we educate our business IT people on our business processes and strategy moving forward," says Turner.

TIME IS MONEY

Finding the time to complete any kind of training under an R/3 implementation schedule can be a tall order. That's the challenge for IT executives working abroad, regardless of the projects they're managing. They're typically overtaxed with the projects at hand, and continuing their education isn't usually a high priority.

"There are real challenges for multinationals trying to deliver education globally," says Rachel Cheeseman, president of the Information Technology Training Association in Austin, Texas. "On one hand, local programs don't usually work because it's not worth a provider's time to customize its whole program to one person who might not speak the language."

In addition, "there's no time to take courses because most IT executives working abroad are already working far beyond what is the local norm, and when they're not, they're often connecting with the mother ship over the ocean to get updates," she says.

These realities are just some of the many reasons that e-learning is gaining ground, says David Von Zurmuehlen, a director at Dallas-based Southern Methodist University's School of Engineering, which helps numerous IT professionals earn master's degrees using video- and Web-based media.

"When IT professionals are working abroad, they're focused on the task at hand. When they get to breathe, they're more focused on integrating family time," says Von Zurmuehlen. "From the cultural standpoint, they're outsiders, and as a project lead, everyone is making demands of them, so it can be overwhelming to try to continue their education. The Internet has had a positive impact, because they can log on and purchase a short class or self-paced tutorial when they have time."

A BLEND WORKS BEST

Global companies will increasingly offer so-called blended programs (which supplement classroom training with distance learning, videoconferencing, videotape and other delivery methods) to meet the needs of IT professionals at home and abroad.

That's the approach taken by Lockheed-Martin Corp.'s Enterprise Information Systems (EIS) organization in Orlando, which provides IT services to the defense contractor's 145,000 employees worldwide.

"We'll be leveraging as many different media as possible as we go forward," says Dwight Weaver, EIS's manager of international IT services. "We're incorporating Web-based training, videoconferencing, PowerPoint presentations and classroom training."

Bethesda, Md.-based Lockheed's foreign training challenges are exacerbated by U.S. export control laws. "As a government contractor, we're very aware of our requirements to protect U.S. technical data in compliance with U.S. export laws," says Weaver. "So, while we're developing capabilities for network-delivered training, what we're able to share isn't hindered so much by technology but by data protection compliance. Data protection technology will allow us to share data across boundaries." ◗

Gilhooly is a freelance writer in Falmouth, Maine.

Electronic-Learning Revenues

Electronic learning is becoming a key component of corporate education and training initiatives at global companies, according to analyst Michael Brennan at Framingham, Mass.-based IDC. Revenues in distance learning are expected to nearly double this year from last year, he says.



Balancing Acts

IT consultants can easily become consumed by long hours and frequent travel. Meet two consultants who chose this lifestyle for the time it affords them with their families. By Leslie Jaye Goff



JOHN NOLTNER

"MY RELATIONSHIP with my kids has changed since I started consulting," says John Goodhue, whose schedule allows frequent vacations.

JOHN GOODHUE earns a six-figure income, takes eight weeks of vacation each year and devotes time to his local Oracle users group.

Doug Sjoquist alternates intense work periods with lighter stretches, home-schools his four children and is building his dream home in the country.

Both IT consultants exemplify how independent consulting can empower IT professionals to strike a unique work/life balance that's difficult to achieve as a full-time employee. But even among IT consultants, Goodhue and Sjoquist are exceptions to the rule.

John Goodhue

Oracle database administrator
Maple Grove, Minn.

Like many IT consultants, Goodhue set out on his own because he wanted more time and money. During the past three years, he has carved out an atypical consulting workstyle that gives him the best of two worlds: the freedom of an independent consultant and the comforts of an employee.

As a W2 employee at consultancy services firm Database Group Inc. in Dallas, Goodhue gets full insurance benefits and participates in a retirement plan that allows him to save as much as $24,000 annually. He doesn't have to fret about paying estimated quarterly taxes or whether clients will pay his invoices.

"I work, and two weeks later, I get paid," he says. "Typically in consulting, clients often don't pay for months, if ever, but I don't have to worry about that."

But Goodhue has never met his "boss" at Database Group, and he's not obligated to work for the agency's clients. He secures his own gigs, sometimes working as a subcontractor through other agencies. On all of his assignments, he sets his own hours and gets his full hourly rate of $125 from Database Group. His paycheck is almost double what he earned as a full-time employee.

He uses his extra freedom and income to plan a major trip once every two months. In the past two years, Goodhue has taken his wife and two children, ages 12 and 14, to Paris, London, New York, Orlando, Las Vegas, Washington, New England, Iceland and Scotland. "I would never have had the time or the money for that kind of travel if I had a regular job," he says.

"It's so much easier to take time off when I'm not being paid for it," Goodhue says. It's a a statement that might seem ironic, given that the nature of consulting is that time equals money.

"It's easy for consultants to get into the mind-set of, 'Oh, if I were working, I'd be making $100 an hour,' " he says. But he refuses to look at it that way. "That would drive you crazy every minute," Goodhue says. "I like my time off, and it's hard for a client to object because I'm not taking paid time off."

Goodhue says he gives his clients three to four weeks' advance notice of his trips, and they have never complained. In between trips, he works six- to 14-hour days, as needed.

Since Goodhue's work isn't as deadline-driven as other types of IT projects, it's easier to set his own schedule, he says.

"In a consulting niche that's more project-oriented — like developing a new order entry system with a specific project plan and deadlines and definite start and end dates — it would be much harder to do what I do," he explains.

Prior to consulting, Goodhue was a database administrator on the order entry system at Fingerhut Cos. in Minnetonka, Minn. He had to work a scheduled maintenance shift every weekend, from midnight Saturday to 6 a.m. Sunday. Every third week, he was on call. That left him very little time with his family.

"My relationship with my kids has changed since I started consulting," he says. "Trips are a good way to enhance the family experience. There's always some sort of problem that crops up when you're traveling, and we work through it as a family. We're much closer than when I only had two weeks' vacation a year."

The biggest challenge to his newfound freedom, Goodhue says, is the possibility that he may find himself with too much time on his hands. Although he's had only one week of unanticipated bench time since 1998, there's always the chance that he could have a dry spell.

"I could be on a gig for months, but it might turn out to be only a week — that's the chance you take," he says. "So you have to have nerves of steel."

Doug Sjoquist

Sole proprietor, enterprise Java developer
Sunetos Inc., Xenia, Ohio

Sjoquist started consulting in 1998 because he "didn't want to end up with a compartmentalized life," he says. "I want to weave together my social, spiritual, professional and family lives — both for my benefit and so I can be of service to others."

To that end, Sjoquist schedules projects in "clumps," he says. He alternates concentrated work periods of several consecutive months with a less-demanding month of half-days. The schedule effectively serves his clients and sets a well-rounded example for his four children, ages 8 to 13.

"My children see 'work' as well as other things about me," Sjoquist explains. He works from home three days per week and frequently opts to program in the mornings and evenings so he can spend afternoons with his family. When Sjoquist is in half-time mode, the family travels, or he tackles personal projects like wiring his new home. If friends or family need a helping a hand, he adjusts his schedule to pitch in wherever he's needed.

His workstyle isn't without its challenges, Sjoquist notes. He frequently works out of town, and last summer he was on the road for six weeks between May and September. "It was a lot more travel than I would have agreed to if I had thought through the contract," Sjoquist says. Even though his children are home-schooled, it's not always possible for his family to join him.

As an employee, Sjoquist says he frequently worked overtime. "I didn't mind some of that, but sometimes I felt like it was overboard. I wanted to get paid for all the hours I worked."

Moreover, as a developer, Sjoquist says he finds it difficult to take full vacations without his laptop in tow, but he manages to mix work and play on the road. For example, depending on his deadlines during a trip, "We may stay a few days longer in a spot, and I'll spend half of the time working, the other half playing."

Goff is a freelance writer in New York.

Question of Balance

In response to an informal poll of consultants at the IT community Web site of Louisville, Ky.-based TechRepublic Inc. that asked, "How successful are you at balancing your personal life and professional life?" IT consultants revealed the following:

70% say they have canceled or cut short a vacation because of work.

55% say their balance is "somewhat successful; some weeks I work too much."

25% say their time is "equally balanced."

20% say they rarely find time for themseives.

(Note: Multiple responses allowed.)

Inventory Turns

BY JAIKUMAR VIJAYAN

DEFINITION

Inventory turns are a measure of how quickly a company replenishes its entire stock of materials or merchandise annually. The more turnovers there are, the less time inventory sits idle, which helps improve cash flow.

THINK OF inventory turns as a measure of how well a company's products are doing in the market and how well its inventory is managed.

The term basically captures the number of times per year businesses such as retailers and manufacturers are able to sell off or use up their complete inventory of raw materials or finished goods.

The more often a company is able to turn over its inventory, the better. The reason is simple: Businesses like to convert merchandise and materials into cash as quickly as possible.

In addition, holding on to inventory costs a lot of money, both in terms of the capital tied up in unsold products and in the expenses associated with warehousing them.

So, the quicker a company is able to push its inventory out the door, the higher the return on its inventory investment and the better its cash flow.

"Anytime you have products sitting in inventory it means your resources are not producing cash flow," says Andy Chatha, an analyst at ARC Advisory Group Inc., a manufacturing consultant in Dedham, Mass. "Ideally, you want zero inventory" if you want to maximize cash flow, he adds.

Do the Math

Inventory turns are calculated by dividing annual sales by the average value of the inventory. For example, if a company had sales of $100,000 last year and the average retail value of its inventory over the past year was $50,000, then the number of inventory turns equals two.

In other words, the manufacturer replaced its inventory every six months, on average.

But if the manufacturer were to increase its turn rates to 10, those same sales would be generated by just $10,000 worth of inventory.

This would generate a lot more cash to invest in other aspects of the business, such as the option to buy "new equipment, build a new sales organization or to give stockholders a bigger payback," says David Monroe, an analyst at Plant-Wide Research Group, a North Billerica, Mass.-based manufacturing consultant. "It's almost like having a free loan, except you never have to pay it back."

The average number of inventory turns varies greatly by industry and by companies within industry segments. For instance, the ratio is particularly critical in industries that face significant pricing and competitive pressures, low margins and fast obsolescence rates, Chatha says.

These include companies in the automobile, consumer electronics and computer industries plus retailers of all types, say analysts. Companies in these sectors all have high inventory turnover rates because the cost of holding on to goods in hypercompetitive, fast-evolving areas can be unacceptably high.

Some firms, like Dell Computer Corp. — considered by many experts to be one of the leaders in inventory management — have turnover rates that range from 30 to 40 times per year.

Companies stand to benefit from improving inventory turns, even with relatively low-volume or slow-moving products, because of the same cost factors that drive companies with fast-moving products, says Monroe.

"In fact, the only industries where it doesn't always help is in aerospace and defense," where the need to maintain inventories of parts for longer periods of time is part of the business model because of slower obsolescence rates, says Monroe.

Getting Better All the Time

A study published in December 1999 by the management firm Pittiglio Rabin Todd & McGrath in Waltham, Mass., found that U.S. companies have dramatically improved their inventory turns during the past few years.

U.S. inventory turns rose by more than 12% from 1994 through 1998 to an average of 5.4 annual turns, according to the report. During the same period, the average cash-to-cycle time — the number of days between paying for raw materials and getting paid for the product — improved by 10% to 100 days, the report stated.

Driving much of those inventory turns was the need to address falling margins and slowing annual growth, the report said. In addition, many big U.S. companies have also invested millions of dollars over the past several years to automate their inventory management processes using sophisticated supply chain management tools.

The continuing move away from traditional build-to-forecast manufacturing models to more flexible models such as build-to-demand, build-to-order and flow manufacturing are also changing the way companies look at inventories, says Monroe.

The increasing emphasis on a fully integrated supply chain means that inventories barely spend any time sitting unused.

"I've seen some practitioners of flow manufacturing who move inventory so quickly that they utilize materials, ship products and bill customers before their suppliers even bill them," Monroe says.

Companies are also becoming increasingly aware of the need to improve inventory management and to move toward build-to-demand models at a time when the overall economy is slowing, says Chatha.

Many high-tech companies, including giants such as Cisco Systems Inc. and Murray Hill, N.J.-based Lucent Technologies Inc., recently got stuck with excess inventories when the economy slowed more abruptly than they had anticipated, reflecting how even well-managed build-to-forecast models can sometimes cause problems. ◗



DELL, which is widely regarded as being a world-class leader in inventory management, typically generates 30 to 40 inventory turns per year.

■ *Are there business terms you would like to learn about in QuickStudy? Please send your ideas to quickstudy@computerworld.com.*



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JOE AUER/DRIVING THE DEAL

Be Wary of Annual Revenue Commitment

A CUSTOMER RECENTLY NEGOTIATED an agreement that called for an annual revenue commitment to the supplier. It's quite common for a supplier to exchange pricing concessions for this type of guarantee from a customer. But what happens if the customer fails to do the guaranteed amount of business with the supplier? In their excitement over getting a great discount, customers often overlook this point. Before agreeing to an annual revenue commitment, you must answer these three questions:

- Do we have the ability to meet the revenue commitment?
- What's the likelihood that we will actually achieve the commitment?
- What if we fail to meet the revenue commitment?

Ignoring these issues can result in a costly problem such as — at the minimum — having to make up the revenue shortfall to your vendor. This alone could wipe out the great discount you got on the front end of the deal.

In verifying your company's ability to meet its annual revenue commitment, survey the end user of the product you're about to buy. The end user should share the responsibility for the commitment you're about to make. Review usage history with the end user so you can determine with a high degree of certainty what the optimum order level should be.

> Regardless of the best plans, estimates and negotiations, the world changes.

Regardless of the best plans, estimates and negotiations, the world changes. The best protection against a changing world is the "significant business change" clause. If this clause is drafted correctly, it will protect you if your company's revenue or profit falls. On the other hand, if business booms, you can secure discounts for purchasing more of the vendor's products.

This clause should specifically allow you to reduce the level of your annual revenue commitment to a vendor without having to pay any adjustment fees. Here is the "downturn" portion of such a clause:

If the customer is unable to fulfill its obligations for the annual revenue commitment due to a downturn in business, customer and vendor shall negotiate, in good faith, appropriate and commercially reasonable changes to this contract. In any event, the customer shall not be liable for any fees, charges or penalties due to a change in the customer's annual revenue or profits.

This clause effectively hedges the downside and eliminates a nasty contract "gotcha."



JOE AUER is president of International Computer Negotiations Inc. (*www.dobetterdeals.com*), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High Tech Acquisition Professionals. Contact him at joea@dobetterdeals.com.

Mail Bag

Ted Vahan, a vice president at systems integrator Covansys in Charlotte, N.C., sent me this note:

I found your article in Computerworld *about protecting your trade secrets interesting [Business Advice, April 9]. As a consultant, it is a topic I have debated with clients and colleagues in the past.*

While I understand the need for protecting intellectual property, many clients want it both ways — you have to have the experience coming in the door, but they want you to leave it behind when you're done! Let's face it — you always stand the best chance of winning an engagement if you can demonstrate that you have done the same thing before. In fact, that's very often the deciding factor in awarding engagements.

All that being said, I think your article makes a lot of sense. However, you should point out that most consultants want to get repeat business with existing clients as well as add new clients, and the best way to approach such situations is to work it out with your consultant to set appropriate restrictions that both parties can live with.

Thank you, Ted, for the note. I feel strongly that we should strive for appropriate rights and obligations that both parties can live with.

You're also right on when you say that clients want consultants to have related experience coming in the door but that clients should, of course, be very leery of a consultant they suspect might use another client's intellectual property. ◗

EXECUTIVE TRACK

Thomas Warga was recently named chief privacy officer at New York Life Insurance Co. In this newly created position, Warga will implement the New York-based company's revised privacy policy to meet federal and state laws. In addition, he will manage New York Life's audit and compliance activities, as well as its office of business conduct.

Sunnyvale, Calif.-based Western Multiplex Corp. recently named **Rita Khayat-Toubia** CIO. Khayat-Toubia will be responsible for IT project management, application development, infrastructure management, organizational development and process re-engineering. She formerly served as director of global information systems at Hoechst Marion Roussel AG, a German pharmaceutical company. Western Multiplex is a wireless network equipment vendor.

GE Supply, a business unit of General Electric Co., recently selected **Scott Telesz** as general manager of supply chain management. Telesz has served in various roles at GE Supply. As e-business leader, he played a key role in building the team that later launched Gesupply.com. Most recently, Telesz served as e-productivity leader. GE Supply, an international distributor of electrical, voice and data equipment, is based in Shelton, Conn.

Fremont, Calif.-based SensArray Corp. recently appointed **Jeffrey Parker** CIO. In his new role, Parker is expected to implement company-wide e-business capabilities that will improve internal and customer information management among its facilities in Asia, Europe and U.S. Prior to joining SensArray, Parker managed his own systems integration business. SensArray is a provider of thermal measurement systems for semiconductor fabrication.

Houston-based Air Liquide America Corp. recently named **Steve Bellis** vice president of IT at its U.S. and Canada division. Bellis worked for 10 years at Freeport-McMoRan Copper & Gold in New Orleans, where he was most recently CIO. A global provider of industrial and medical gases and services, Air Liquide America is a subsidiary of Paris-based L'Air Liquide SA.

First Commonwealth Financial Corp. recently named **Sue McMurdy** CIO. In addition to filling this role, McMurdy is president and CEO of Commonwealth Systems Corp., the data processing subsidiary of First Commonwealth, a $4.4 billion financial services company in Indiana, Pa.

Sovereign Bank recently appointed **Janet M. McCoy** chief privacy officer. In this role, McCoy will develop and implement the bank's customer privacy policies and oversee the integration of privacy initiatives throughout the organization. Previously, McCoy was manager of Sovereign's advertising, business and consumer marketing groups. She is also a founding member of the Association of Corporate Privacy Officers. Sovereign Bank is the primary subsidiary of Sovereign Bancorp Inc. in Philadelphia.

Metris Cos. has appointed **Dan Piteleski** as CIO. He is expected to be instrumental in expanding the company's IT infrastructure. Prior to his appointment, Piteleski served as CIO for six years at H.B. Fuller Co. in St. Paul, Minn. Metris, a direct marketer of consumer credit products and services, is based in Minnetonka, Minn.

Spirit Airlines has chosen **David M. Anderson** as its new CIO. Anderson previously served as CIO at Certified Vacations Group Inc. in Fort Lauderdale, Fla., and as vice president of technology at GoCruiseDirect.com in Miami Lakes, Fla. Spirit Airlines, the largest privately held airline in the U.S., is based in Miramar, Fla.

PSINet Inc. recently tapped **Harry G. Hobbs**, the company's former chief operating officer, to take over as CEO. The Ashburn, Va.-based Internet services company also named **Lawrence E. Hyatt** chief restructuring officer in addition to his current roles as executive vice president and chief financial officer. **Ian Sharp** was named chairman of the board of directors. He replaces **William L. Schrader**, who had been chairman and CEO.

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CONFERENCE AGENDA

SUNDAY, MAY 20

12:00 - 5:00pm
GOLF TOURNAMENT FOR PRE-REGISTERED ATTENDEES

7:00 - 8:30pm
PRE-CONFERENCE EVENING NETWORKING RECEPTION

MONDAY, MAY 21

7:00am - 8:00am
BUFFET BREAKFAST

8:00am



WELCOME & OPENING REMARKS
Alan Guibord, CEO, Computerworld
Maryfran Johnson, Editor-in-Chief, Computerworld

8:15am



OPENING KEYNOTE: GOING DIGITAL THE OLD-FASHIONED WAY: GM'S LEVEL-HEADED APPROACH TO E-BUSINESS
Ralph Szygenda, CIO, General Motors

9:00am
PANEL 1:
IT'S MISSION IMPOSSIBLE: GLOBALIZATION AND E-BUSINESS
Panel Moderator: Sarwar Kashmiri, CEO, EbizChronicles.com

Ready or not, the Web is making the globalization of business a reality. But pursuing a global strategy means more for IT than creating a worldwide network infrastructure, setting up foreign distribution or hiring IT talent abroad. So how does an IT Leader go about getting a grip on strategy to support the enterprise's global business objectives? Our panel will share its collective international experience to send you off with a host of good ideas along with an action-item list.

10:00am
BREAK

10:15am



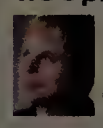
OLD RULES, NEW GAME: BUILDING PRUDENTIAL'S GLOBAL E-STRATEGY
Irene Dec, VP International Investments, Prudential Insurance

11:00am
PANEL 2:
THE NEXT WAVE OF E-COMMERCE: CONNECTING YOUR CUSTOMER CHANNELS
Panel moderator: Kevin Fogarty, Business & Technology Editor, Computerworld

The customer economy has arrived with a vengeance, trailing massive numbers of Customer Relationship Management (CRM) systems in its wake. But integrating disparate CRM applications and re-architecting workflow to get that mythical 360-degree view of the customer remains a major hurdle for IT. Are you tying all of your customer channels together — in realtime — to leverage existing investments in front-office and legacy applications? This panel will bring together diverse industry views on a topic that ultimately affects every company's bottom line.

12:00pm
INTERACTIVE LUNCH: RECRUITING & RETAINING TOP TALENT

1:30pm



AFTERNOON KEYNOTE: SURVIVING THE REVOLUTION AND THRIVING IN THE CUSTOMER ECONOMY
Patricia Seybold, CEO, Patricia Seybold Group and Author of "Customers.com" and "The Customer Revolution"

2:15pm
PANEL 3:
WIRELESS WARRIORS AND THE CHALLENGE OF M-COMMERCE
Panel moderator: Bob Brewin, Senior Editor, Wireless Technology, Computerworld

Few technologies hold as much promise — or pose as many perils — as wireless networks and mobile computing. What are the best practices in deploying mobile commerce applications that resolve security concerns and location-service controversies? Which applications make the most sense for wireless LANs? How do you choose an architecture that works well for your user base? How solid is the Wireless Application Protocol (WAP) standard for unifying handheld devices and wireless networks? Our panelists will examine these core questions through the lens of their own experience, coming up with some practical recommendations for the next wave of wireless warriors.

3:00pm
BREAK

3:10pm



CLOSING KEYNOTE: THE ABILITY TO RISK INNOVATIONS
Chet Huber, President, OnStar

3:55pm
CLOSING REMARKS

4:00pm - 5:30pm
SPONSOR BREAKOUT SESSIONS

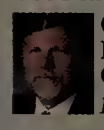
5:30pm - 8:30pm
COCKTAIL/NETWORKING RECEPTION
EXPO & BUFFET DINNER

TUESDAY, MAY 22

7:00am - 8:00am
BUFFET BREAKFAST

8:00am
OPENING REMARKS
Alan Guibord & Maryfran Johnson

8:15am



OPENING KEYNOTE: IT LEADERSHIP IN A CHANGING ECONOMY
Doug Busch, CIO, Intel

9:00am
PANEL 4:
THE HEAVY HAND OF UNCLE SAM IN ONLINE SECURITY AND PRIVACY PROTECTION
Panel Moderator: Alan Paller, Research Director, SANS Institute

Wherever technology touches its citizens these days, the U.S. government seems to be there with new regulations or proposed legislation. The high-tech sector remains split about how to approach online privacy guarantees in the U.S., while the European Union has already adopted tough data protection laws that multinational companies must follow. Our expert panel will talk about strategies for keeping a step ahead of Uncle Sam in this uncertain, potentially explosive, regulatory environment.

10:00am
BREAK

10:15am



PRIVACY - IT'S NOT JUST A COMPLIANCE ISSUE
Eddie Schwartz, VP of Strategy, Guardent (former Chief Security Officer, Nationwide)

11:00am
TOWN HALL MEETING: "ASK THE CAREER EXPERTS"
Maryfran Johnson

12:00pm
EXPO & BUFFET LUNCHEON

1:30pm



AFTERNOON KEYNOTE: THE BEST OF BOTH WORLDS: THE SYNERGY BETWEEN OPERATIONS AND IT
Laura Olle and Marge Connelly, Co-CIOs, Capital One Financial

2:15pm
PANEL 5:
THE NEW ROI: TRACKING TECHNOLOGY PAYBACK IN A TOUGH ECONOMY
Panel Moderator: Julia King, Executive Editor, ComputerworldROI

Now is the time to recession-proof your IT organization, generate some new ideas and find new revenue streams. How is your company using the Internet to streamline processes within the organization and deal more effectively with your supply chain? Are you creating online relationships with partners and competitors alike? Where can you use IT to create new products and services? Getting focused on the real business opportunities and the ROI behind technology expenditures is the mission of this panel.

3:15pm
BREAK

3:25pm



CLOSING KEYNOTE: ESSENTIAL INGREDIENTS FOR B2B MARKETPLACE LIQUIDITY
Harvey Seegers, President/CEO, GE Global eXchange Services

3:55pm
CLOSING REMARKS
Alan Guibord & Maryfran Johnson

4:00 - 5:30pm
SPONSORED BREAKOUT SESSIONS

7:00pm
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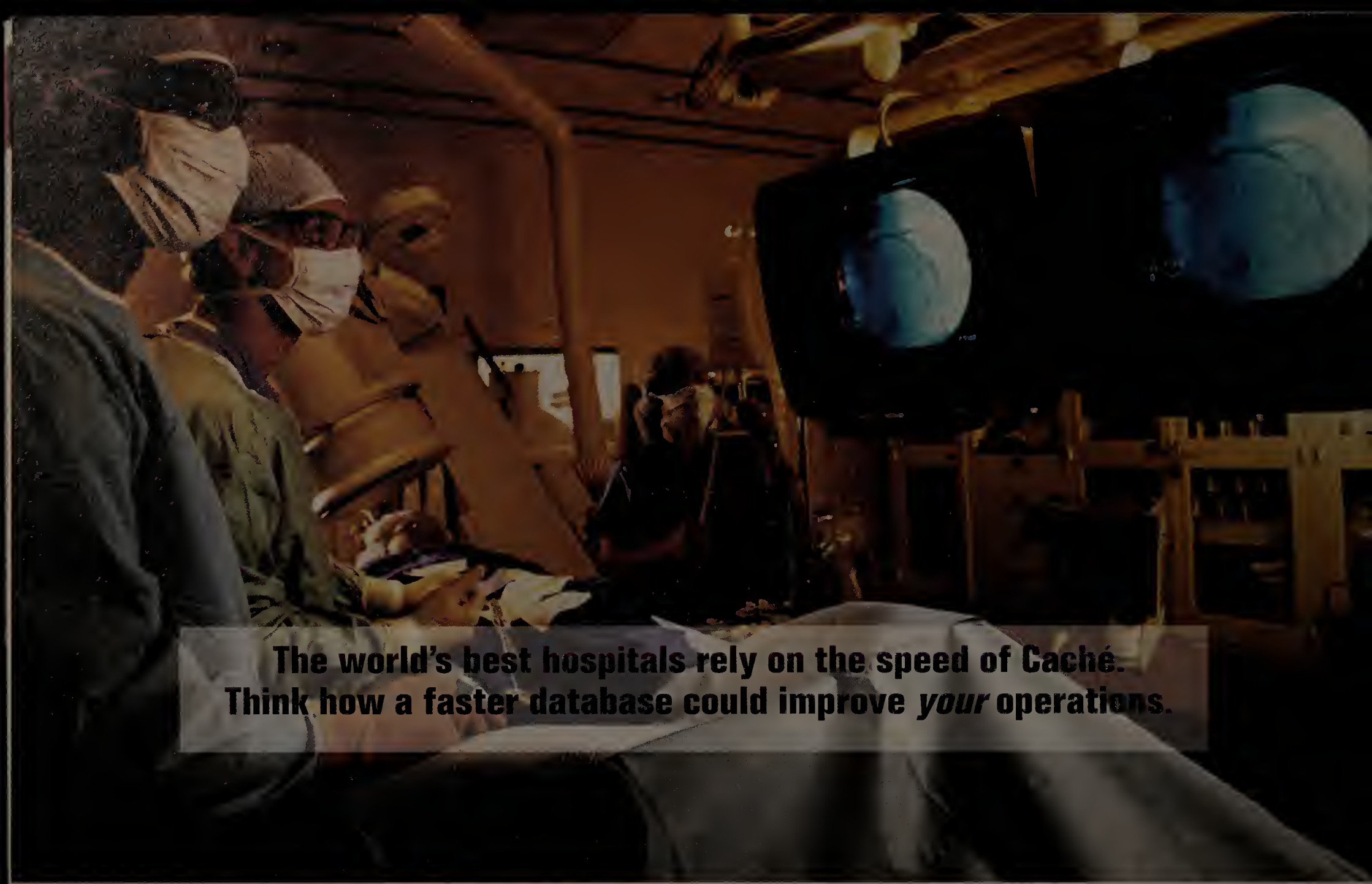
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TECHNOLOGY

WIRELESS ALTERNATIVE

Some businesses are using fixed wireless services successfully. Analysts say there's room to use this technology as a cheap alternative to Digital Subscriber Lines and T1 lines for branch offices and small companies. ▸ 56

SECURITY JOURNAL

When a user's system exhibits bizarre behavior, security manager Mathias Thurman suspects a Trojan horse. But when the virus proves elusive, he plays it safe — and annoys the user — by wiping the system clean. ▸ 58

FUTURE WATCH

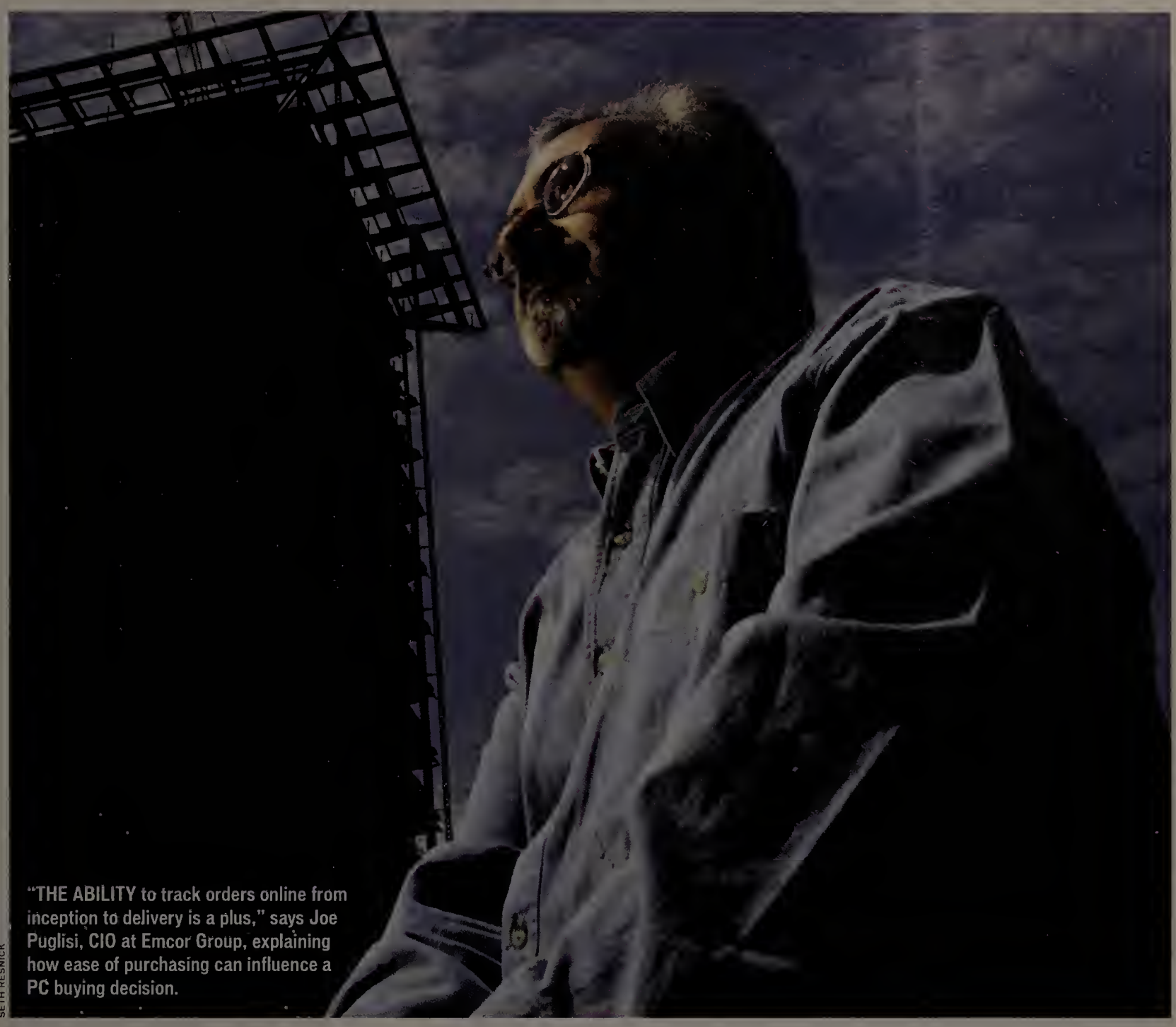
MIT futurist Michael L. Dertouzos says it's time to leave the Industrial Revolution behind and complete the Computer Revolution. Making machines serve people, instead of the reverse, will transform the way we live and work, he predicts. ▸ 60

VIRUS THREAT

Virus signature updates are the bane of a security manager's existence. How do you keep all those antivirus programs updated across thousands of desktops? There's no easy way, security managers say, which leaves them scrambling and users vulnerable. ▸ 66

MORE

Emerging Companies 68
Trendsetters 69



"THE ABILITY to track orders online from inception to delivery is a plus," says Joe Puglisi, CIO at Emcor Group, explaining how ease of purchasing can influence a PC buying decision.

SETH RESNICK

BUYING PCs FOR THE ENTERPRISE

NUMEROUS STUDIES HAVE SHOWN that the price of a new computer is only a small part of the total cost of ownership. Support, maintenance and other intangibles contribute far more to the sum. Those who buy desktop computers by the tens, hundreds or thousands have taken this lesson to heart. When they go shopping, their list of desired features has very little to do with hardware.

62

Fixed Wireless Provides Network Alternative

Technology offers fast and cheap Internet access for branch office

BY MATT HAMBLEN

KANSAS CITY, Mo.-based Air Charter Team, an air passenger charter company for VIPs, relies on fixed wireless technology for fast access to the Internet to help in booking flights and downloading streaming media.

Air Charter is one of the many small and midsize companies, or branch offices of larger companies, that analysts said are picking fixed wireless technology over slower dial-up and other faster broadband Internet access methods. Fixed wireless is usually less expensive and easier to provide than T1, or fractional, connections, they said.

The charter carrier operates out of the old Kansas City airport near the center of the city, where cable modems and Digital Subscriber Line (DSL) service aren't available, said company President Joseph W. Tasler. Air Charter also wanted a less expensive connection than a T1 or faster connection but wanted greater speed than 56K bit/sec. dial-up or Integrated Service Digital Network, he said.

Air Charter Team's agents regularly use high-speed Internet connections for quick searches among hundreds of charter planes and pilots for their availability as well as to access streaming video to view various jet models and interiors, Tasler said.

A T1 line, with 1.54K bit/sec., of bandwidth, costs about $1,700 per month in the Kansas City area, compared with the $299 per month that Air Charter Team pays for fixed wireless, which provides more than 600K bit/sec.

The company contracts the service from Computer Training Corp. (CTC) in Independence, Mo., one of the many small fixed wireless providers in the nation. CTC offers T1-equivalent speeds for $1,000 per month.

"I'm very impressed with their service so far, and my only hope is that CTC doesn't oversubscribe and can't give us good service," Tasler said.

CTC officials said they use a proprietary fixed wireless technology that operates on 802.11b wireless technology usually seen in LANs with only 1,000 feet of wireless range.

But Air Charter Team has a small custom antenna on its roof that beams an amplified signal about 1.5 miles away to the rooftop of another CTC customer, which serves as a peer in the network, and that customer is then connected to a T1 line, CTC officials said.



TASLER: Air Charter gets fractional T1 speeds from fixed wireless.

Another CTC subscriber, Barber Financial Management Inc., also in Kansas City, uses fixed wireless to provide Internet access and e-mail capabilities for sensitive customer data, said Kent Barber, president of the firm.

"We've had no security concerns," he said.

Analysts said there are many varieties of fixed wireless, including Local Multipoint Distribution Service and Multichannel Multipoint Distribution Service, which operate in radio spectrum licensed by the Federal Communications Commission. The biggest providers of such systems are Sprint Corp. and WorldCom Inc., analysts said.

CTC is offering its service in the unlicensed spectrum, as are many other providers, said Ronnie Galang, an analyst at Telechoice Inc. in Denver.

The biggest drawback of fixed wireless is its dependency on a line-of-sight connection from receivers and transmitters, which makes the signal susceptible to fog and rain, said Galang and Matt Davis, an analyst at The Yankee Group in Boston.

Galang said larger organization that are considering using fixed wireless might find it acceptable as a backup to another network. He recommended that if a company uses fixed wireless access, it should be purchased with a backup network based on another technology in case of outages or the demise of the service provider.

Tasler said his backup for fixed wireless is resorting to using phones without Internet access to make bookings, although he has never experienced a prolonged outage.

A market report by San Jose-based Frost & Sullivan in March said fixed wireless access services in the U.S. earned about $840 million last year and are expected to surpass $28 billion by 2007.

Researchers Struggle With Problems From Hiding Data

Legal threats haunt experts on data tracking, secrecy

BY PETER WAYNER

Scientists attending the Fourth Information Hiding Workshop last month in Pittsburgh viewed demonstrations of how to conceal information from repressive regimes and how to build watermarks to track documents, and they got a lesson in how to use vague threats of a lawsuit to muzzle academic discussion.

The normally uncontroversial conference focused on exploring ways to slip extra bits of information into unexpected locations. The science of hiding information, often called steganography, is gaining attention because copyright holders, especially those in the music industry, hope to use the hidden bits of information to tag and even corral digital versions of songs, books, movies and other works of art.

The tools for creating these "digital watermarks" were developed by members of the Secure Digital Music Initiative and released in a highly controlled contest that publicly challenged others to test their strength.

But when a group of scholars from Princeton University, Rice University and Xerox Corp.'s Palo Alto Research Center (PARC) discovered ways to circumvent those tools for embedding copyright information in songs and planned to present a detailed paper at the workshop, tensions surfaced. The Recording Industry Association of America sent a letter encouraging the researchers to keep the information secret and noting that they could face legal action.

The group withdrew the paper and issued a statement saying, "Litigation is costly, time-consuming and uncertain, regardless of the merits of the other side's case."

The conference was devoted to describing new and enhanced ways to hide or lock information. Another group from Xerox PARC demonstrated tools for hiding information in the background of text documents. One approach used small hash lines oriented in different directions to encode the information; others used the size and width of the characters. Both technologies let people embed digital signatures into text documents.

Many researchers wrestled with the problem of how to create watermarks that could be controlled by encryption keys. Such a system would work like public-key encryption (PKI) algorithms: Only one person could embed the watermark, but anyone could test its presence. This type of tool would allow companies to embed watermarks that act as digital signatures in electronic documents. Another approach used neural networks as keys, and a third method was based on zero-knowledge proofs, which allow a user to verify that he has the information without revealing it.

Other techniques used private keys, so the information in the watermark could be recovered only if the key was known. These techniques are more useful for hiding information in a way that can't be identified. Some papers described sophisticated techniques that eluded detection by ensuring that the hidden information was statistically identical to the surrounding data, providing camouflage.

Englishman Toby Sharp described a tool he developed with an unnamed friend who was living in a country where the police regularly scrutinized his e-mail. The tool, which hid information by modifying the least significant bits of an image, allowed Sharp and his friend to express themselves without fear of reprisals. Sharp and his friend couldn't use regular encryption to protect his privacy because the police blocked the messages.

Testing Watermarks

Experimental approaches for creating digital watermarks:

- **TYPOGRAPHIC (hash marks, character coding)**
- **ENCRYPTION KEYS**
  - Similar to PKI technology
  - Based on neural networks
  - Based on zero-knowledge proofs

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SPECIAL ADVERTISING SUPPLEMENT

The Evolution of Hosting Services Across the Web

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The Evolution of Hosting Services Across the Web

The outsourcing of Internet infrastructure has gained momentum since static Web sites began flourishing across the World Wide Web. Enterprises first warmed to the benefits of outsourcing when it came to the management and hosting of their initial Web operations and have most recently followed with the need for managed network, hardware and application operation services.

By Dana Tardelli and Lisa Perri, Aberdeen Group

With outsourcing adoption rates on the rise, Aberdeen research indicates that the hosting services market will be worth $70 billion by 2005 in the U.S.

Service providers of all genres have rushed to offer hosting solutions as a means to improve customer loyalty and gain healthy margins to counter the commoditization of basic Internet access services. Consequently, the supplier marketplace has become confusing with expanding product portfolios and vague positioning. To make matters worse, hosting service providers have offered little product differentiation and marketing efforts have done little to illustrate a unique value proposition or target market.

Meanwhile, only some providers have truly demonstrated the technical competency to adequately support the increasingly complex demands of today's e-business enterprise. Many customers expecting the seamless delivery of Web content have been disappointed by reliability and the lack of service continuity. Apprehensive enterprises, in response, have been quick to remind providers that 'service' is crucial to their success. And customers now insist suppliers develop technical and practical expertise in-house; partner with best-of-breed suppliers; regularly define, document and refine both processes and action; develop easy-to-understand metrics for cohesive service level agreements (SLAs); and deliver exactly what their customers pay for.

Defining Hosting Services

The hosting services market is the management of Internet operations. It is the service backbone that facilitates the delivery of mission-critical applications. The three elements within the hosting services environment are defined by Aberdeen as connectivity services, operational hosting services and value-add managed

services. (See chart, page 4)

◗ *Connectivity services* — These services are the transport of, and access to, high-speed fiber networks. Access to these networks is available through specialized facilities or data centers that provide and manage network operations. These connectivity services establish the link between communication backbones and the computing function.

◗ *Operational hosting services* — These services are the serving and maintenance of computing operations for the delivery of Internet applications. Generally, operational hosting services are segmented by the degree of complexity. Simple hosting is the entry level of hosting for customers with non-mission-critical Web site needs — typically small businesses and small/home offices. Customers share expenses of servers and connectivity with other companies' Web sites. Higher up the ladder, there is the hosting and operational management of Web, Web middleware and transaction servers that are the essential operations of complex Web and application hosting. This layer requires the availability of a transaction-processing database and plays an essential role in e-commerce.

◗ *Managed services* — These value-add services are the hottest offering in today's expanding hosting services portfolio. Offering expertise in systems and service management, they deliver some combination of complex network infrastructure configuration and management, content distribution, security, storage, support and applications management. Managed services are offered throughout the provider spectrum and clearly illustrate the integration of hosting solutions. Hosting service providers (HSPs) that understand the impact of the commoditization of connectivity welcome the incremental revenue stream and margin. These services are a significant building block of customer loyalty, account control and profitability for hosting providers over the long term.

Factors Promoting Market Growth

The demand for hosting services can largely be attributed to four significant market enablers that are driving the adoption and requirements of the marketplace: Outsourcing advantages, e-business proliferation, small and medium enterprise markets and ASP revival.

Outsourcing advantages

Classic outsourcing benefits have been well documented but enterprises are still warming to its advantages and are gaining a better understanding of how it directly relates to the following list of business initiatives:

◗ Core competence — Outsourcing helps companies concentrate on what is important without getting sidetracked. Increasingly, companies are no longer viewing the operation of their IT infrastructure as an internal competency and are willing to hand off some responsibilities to those that do.

◗ IT skills shortage -- "Good help is hard to find" has never been truer than with today's IT personnel. Once help is found, it is difficult and expensive to retain.

◗ High quality, low cost — Outsourcing allows for the sharing of some very expensive and qualified resources across multiple users. Best-of-breed resources are not cheap and do not remain static for long. Outsourcing Internet infrastructure leverages elite staff support, hardware, software and the facilities in which it resides.

◗ Time-to-benefit advantages — Service provider infrastructure is operational and IT expertise is established throughout the service organization. The opportunity presented by gaining quick access to operational efficiencies or improved customer interaction can be critical in a post dot-com era that emphasizes revenue and profit growth.

◗ Mitigation of risk — Whether economic conditions drive explosive growth or unexpected contraction, outsourcing offers timely flexibility to scale the Internet operation. By allowing for the mitigation of upside and downside risks, outsourcing can accommodate for planning mistakes.

E-business proliferation

Where once simple Web pages were the reason for outsourced hosting, today e-business is the key driver —

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pushing more than 80% of the demand for infrastructure facilities. Over the next four years, in terms of volume, it is all about e-business. Although some hosting providers will serve a mixed client base of e-business, application service providers (ASPs) and network service providers most will focus on e-business sites underpinned by database-generated Web pages. Despite the complexities, enterprise site builders and operators recognize the advantages of database-driven sites. Many will opt for outsourcers rather than acquire the skills needed for the care and feeding of servers, database engines and network appliances.

Small and medium enterprise markets

Recently enabled with broadband technologies and anxious to kickoff Web-based initiatives, small and medium enterprises (SMEs) will be the strongest demand segment for outsourced hosting solutions. Aberdeen estimates that the SME market will assume nearly 72% of the hosting services space by 2005. Value propositions, such as providing consistent IT resources and speedy implementation, are a compelling reason for this expansive market segment to capitalize on these services.

ASP revival

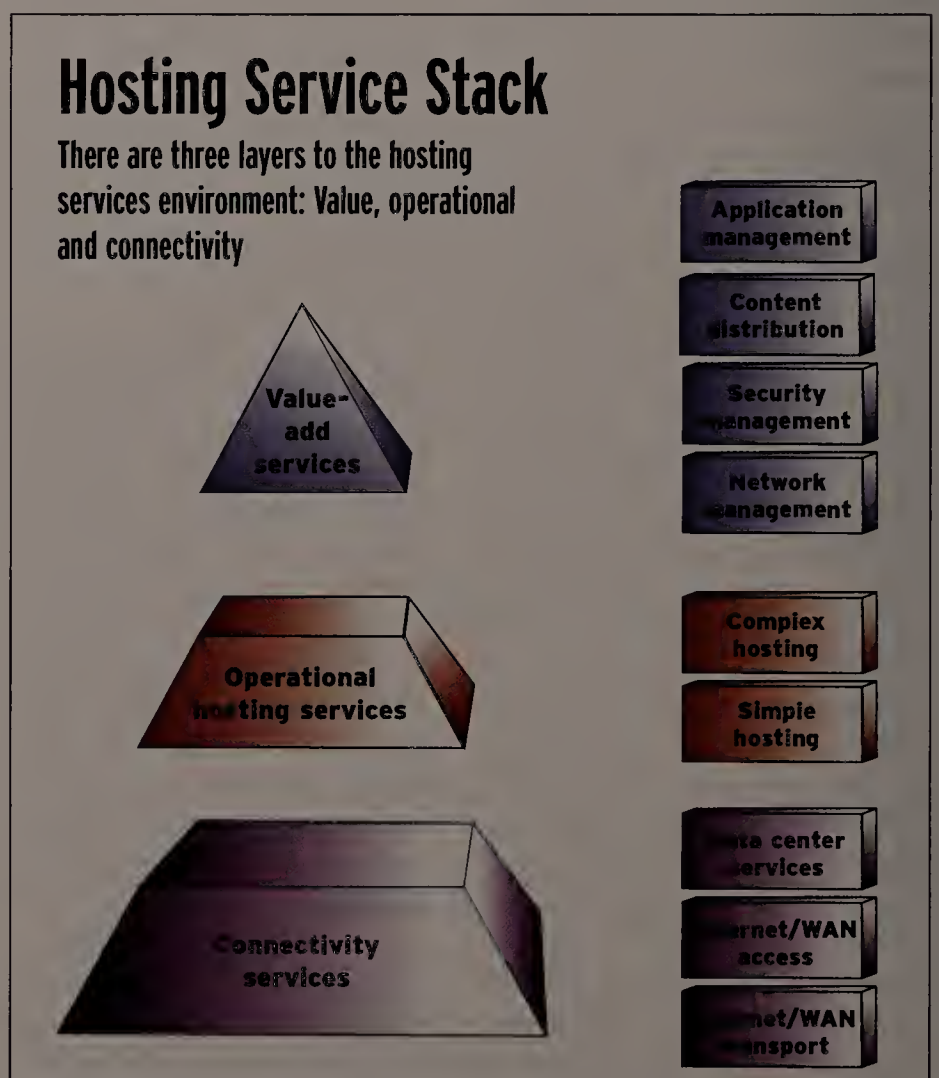
Despite today's slow adoption of the ASP offering, business and IT managers will gradually transition the responsibility of the application, along with the productivity of the user community, to a functionally expert supply chain. E-mail and desktop productivity suites have already begun to gain traction using the ASP model. But strict requirements regarding the ability of the physical infrastructure to deliver managed services will place an emphasis on the reliable delivery of hosting services.

Significant Trends

The hosting services market continues to evolve. HSPs are constantly adding more services and capabilities as they strive to meet the needs of customers. Aberdeen has identified four significant trends affecting the hosting services marketplace today: Best-of-breed partnerships, stable power, process and automation, and standardized solutions.

Best-of-breed partnerships

The breadth of services within the hosting services market requires a variety of competencies. As individual suppliers extend themselves outside of their core capabilities, customers are poised to receive inadequate service from a disjointed supply chain. Today, the end user continues to struggle with multiple offerings from providers that lack quality continuity. Failure by the supplier to provide consistent availability and support to the end user is not acceptable in a service industry where mis-



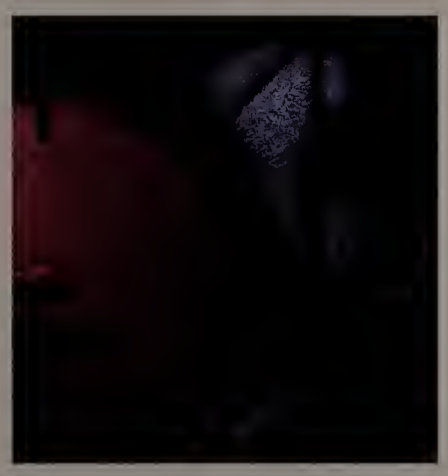
sion-critical e-business operations are entrusted to third-party expertise. Tightly constructed partnerships and reseller relationships are required to leverage competencies and provide a seamless solution to the end user. Although few providers are currently in a position to capitalize on this disjointed supply chain, Aberdeen foresees continued partnering across competencies as a boon to the customer experience.

As these partnerships develop, participants will need to solve some fundamental business issues, like which partner will own the end-user relationship or how can the profits be shared. This may be difficult for successful standalone companies with a strong brand identity and a natural unwillingness to distance themselves from the end user. Aberdeen commends those providers that recognize the limitations of their in-house competence and are willing to hand off responsibilities and revenues to skilled partners.

Stable power

While the focus in the U.S. has been on the adoption of technology to increase the scalability of service providers, there's a key piece of infrastructure affecting data center capacity just outside the data center walls that many customers — and some data center providers — forget: Access to our most basic technological resource — power — is an embarrassing issue for many data centers that either cannot access enough redundant power, or do not have the technology or expertise to properly monitor and manage power. But as loud as the energy crisis is in some parts of the world right now, it is a symptom of the fundamental failure of adequate risk and supply chain management by service providers that is the real problem.

Data center providers are responsible for the physical foundation of



the infrastructure — as a service. This includes the land, building, energy, connectivity, physical security, climate control and eliminating any single point of failure that potentially interrupts any of these services. This requires risk management, change control, resource planning and supply chain management for every required facet of the service. Where the early Internet data centers failed was in blissfully concentrating on the four walls within plus adequate Internet connectivity. Single points of failure were mitigated with redundant routers and multiple peering points, battery backup inside and generators outside, but still many of them had one entry point from the power line and generator into a dusty corner of the data center.

Where the early Internet data centers failed was in blissfully concentrating on the four walls within plus adequate Internet connectivity.

The failure to appropriately engineer the data centers for each layer has impeded the data centers from scaling their operations when resources are inhibited by external suppliers. When power companies can't — or won't — bring additional capacity to the data center, and there is no ability to procure or generate additional sources of energy, where is power redundancy?

As resource constraints and customer demand shape new business models for data center companies, there is a change in market focus from land grabbing to increasing operational efficiencies. Some are adding more services to their enterprise customers, and some are providing other types of service providers with the facilities to do business with other complex infrastructure customers. Data centers may share in some of the revenues generated within their walls — similar to a retail mall. Whatever models take shape, there is finally a piercing murmur as suppliers focus on best practices, process and procedure. Throw all the technology at anything, and without understanding the entire business process from start to finish, somewhere, a customer gets left in the dark.

Process and automation

Service providers are establishing highly usable infrastructure and management systems to launch common platforms for quick and inex-

pensive deployment of a managed hosting product portfolio to their customer base. Automated delivery procedures should ensure a consistent quality of service that will drive satisfaction from both customers and partners. For example, relieving the service provider from the need to manually provide infrastructure expertise and IT skills. Instead they should be able to replicate and automate tasks or functions. Automated platforms position the service provider with a highly scalable offering designed to draw long-term efficiencies and profitability from the competitive managed services landscape. But the system management technology required in such an automated hosting environment is still being developed. Many of today's management frameworks and device-level tools were designed with tens or hundreds of servers in mind, not tens of thousands. Similarly, many monitoring tools have not scaled to that level, and many service providers have not automated the installation of new customers, bringing on each new customer as a customized project. Backup and restore processes are difficult for one customer, let alone many customers, and are complex even with the most advanced software available. Resource planning is still done on a spreadsheet instead of automating asset management and trend analysis of resources. Large and small suppliers are bringing upgraded or new point solutions to the infrastructure market, but a true hosting operation support system has not previously existed. Successful scaling will require a significant level of automation based on intelligence embedded within the devices themselves.

Standardized solutions

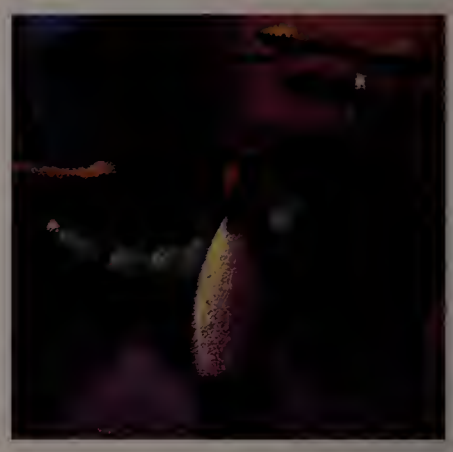
While custom built IT infrastructure and applications have been available from professional service organizations for decades, the exorbitant expense has often proved inhibitive. In today's economic climate, scalable business models are en vogue again.

With an expected $70 billion market, HSPs must be prepared for customer growth without customizing every new customer environment. Instead, preconfigured hardware and software solutions are tested and integrated into the provider's environment. Several competitive options will likely be available so the customer may maintain a degree of choice. As the HSP limits the network variables, a domain expertise is gained by documenting problems and resolutions to continually drive inefficiencies and errors out of the service. In the end, the standardized solutions offer the customer the benefits of 'cheaper, better, quicker, more reliable' service.

Backup and restore processes are difficult for one customer, let alone many customers, and are complex even with the most advanced software available.

Competitive Landscape

Over the last two years, providers of all types have entered the hosting services market. While some HSPs have publicly indicated a target customer segment, few have clearly articulated a distinct value proposition that appeals to a specific sub-segment. As a result, prospective hosting customers are confused in choosing



the HSP that best fits their needs.

HSPs, like Exodus Communications Inc. and Digex Inc., often attract customers based on their bellwether status, rather than their ability to serve a specific vertical market or environment. Similarly, traditional carriers like AT&T and WorldCom have attracted customers with their catchall net of abundant infrastructure resources. Other emerging providers, like Loudcloud Inc., have relied on the market hype surrounding complex managed hosting to establish them in the marketplace.

The competitive landscape is beginning to provide differentiation as the U.S. economy slows and enterprise customers begin to make more educated supplier choices. HSPs must develop value propositions and pricing schedules that will resonate with specific market segments while providing flawless service throughout the customer life cycle.

Next, Aberdeen profiles Cable &

Wireless, outlining its own unique position in the hosting services market and highlighting the specific value it brings to the table.

Introducing Cable & Wireless

Cable & Wireless offers a suite of hosting services that allows growing customers to effectively scale their Web operations with co-location, shared and dedicated managed hosting services. With transport speeds up to OC-192, the company can leverage its proprietary fiber-optic network to guarantee a secure and reliable global network. Cable & Wireless has 22 state-of-the-art data centers, called Internet Solution Centers (ISCs), throughout the world to house operational support for its hosting customers.

Cable & Wireless adopted the "building block" approach for delivering its hosting services to drive consistent service and quick time to market for its hosting customers. Customers can choose from a variety of pre-defined hardware and software platforms plus service options to meet their unique requirements. Platform options include Sun Solaris, Microsoft Windows NT, Windows 2000 and Linux. Service options include hardware configuration, software installation, monitoring, data back-up, usage reporting, network design, load balancing and managed firewalls.

Cable & Wireless' hosting solutions target a cross section of enterprises and service providers located in the U.S., Germany, France, United Kingdom and Japan.

Amidst today's economic slowdown, customers entrusting the operation of mission-critical Web applications can only feel comfortable with an HSP that illustrates stability. Cable & Wireless has been an exemplar of this in the global telecommunications market for nearly 125 years.

Core Products and Services

Cable & Wireless' hosting services include:

- *Shared Hosting* — This basic service provides a hosted Web site and domain name registration as an entry point into hosting. Cable & Wireless also augments the offering with online site development and management tools. This service is generally provided on a wholesale basis to Tier 2 and Tier 3 global ISPs.
- *WebReady* — This offering provides a simple pre-configured and pre-provisioned dedicated hosting solution with the advantages of 24/7 monitoring, guaranteed bandwidth and back-up servers, plus the option to customize additional bandwidth and technical support.
- *Managed Hosting Solutions* — Cable & Wireless assumes the responsibility for dedicated server equipment and related management resources by offering customers a portfolio of fully managed hosting solutions. Based on their unique requirements, customers choose from a series of hardware and software options.

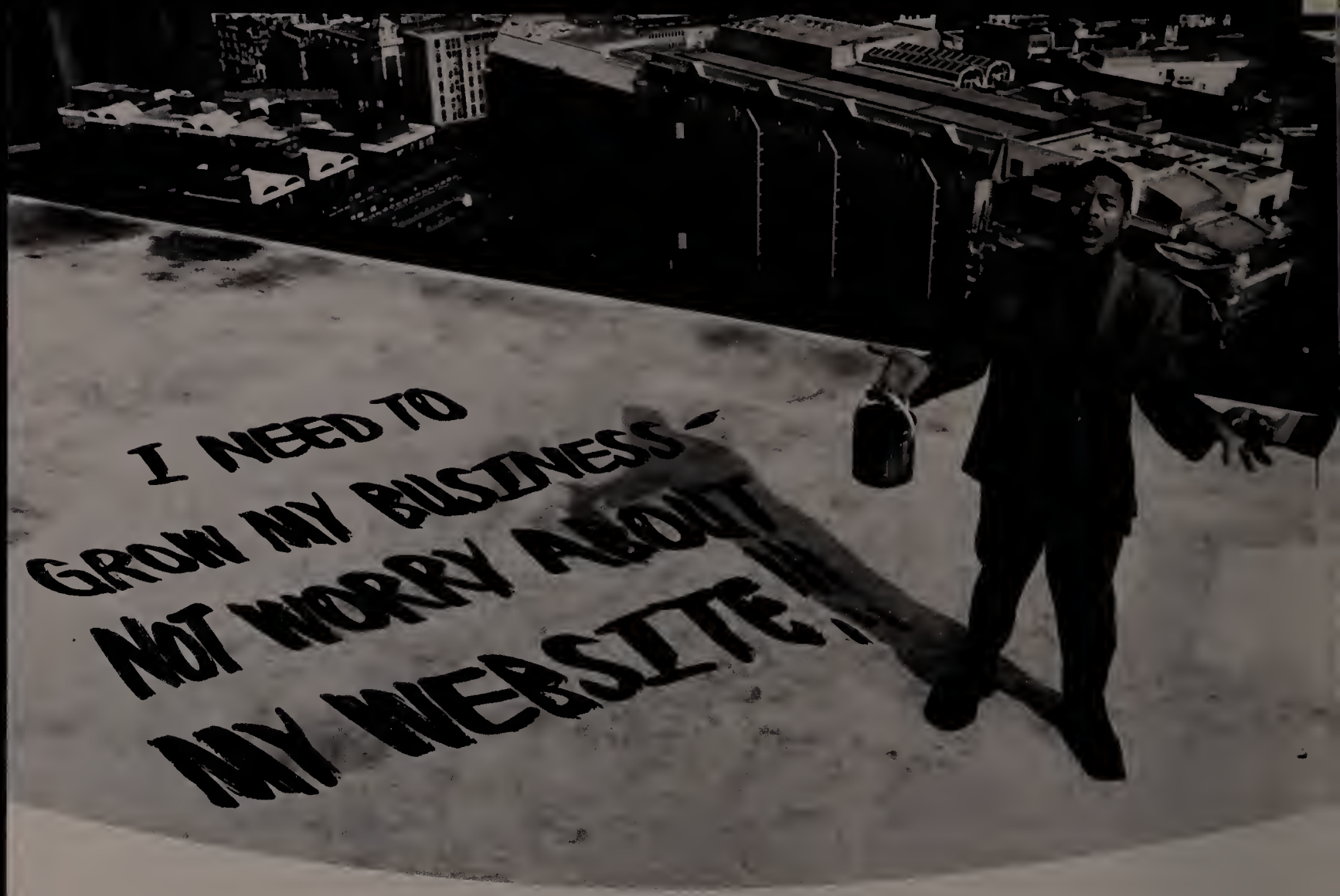
Cable & Wireless also provides site management and monitoring services. The managed hosting solution is offered with a fixed rate or burstable bandwidth option on a usage-based billing model and service level agreements covering installation, network access and server availability.

- *Edge Colo* — This provides basic rack and cage space co-location services with direct access to Cable & Wireless' global IP backbone. It is targeted at suppliers needing access to the network edge to provide end users speedy and reliable content.
- *Internet Shock Absorber (ISA)* — This caching service allows customers to gain an advantage in the optimal distribution of Web content. The ISA service also allows customers to efficiently manage bandwidth requirements and therefore reduce associated costs. The service is targeted at Internet service providers and content providers.

Conclusion

Cable & Wireless has a strategy that offers critical data services to its business and service provider customers. The company has launched a portfolio of hosting infrastructure and service options to gain multiple points of market entry. While historically recognized in European and Asian markets, Cable & Wireless hosting services are well positioned in North America to cater to the needs of customers that find a competitive advantage in one-stop access to a global high-speed network. The sheer magnitude of its network reach and strong global reputation should sustain Cable & Wireless as a competitor in the hosting service market.

Dana Tardelli and Lisa Perri are analysts with the Aberdeen Group. This White Paper includes excerpts from Aberdeen's report *Hosting Services: Outsourcing E-business Delivery.*



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Wearable Storage Device Keeps Records With Patients

BY JULEKHA DASH

Matrevic Data Systems Inc. in DeSoto, Texas, has launched a three-month trial of a wearable storage device that it claims will reduce medical errors by collecting patient information in a single location.

The application development and systems integration firm plans to enlist more than 5,000 patients, each of whom will wear an 8MB flash memory card from Sunnyvale, Calif.-based SanDisk Corp. that will store his medical records.

The trial is expected to prove that doctors don't have the information they need to properly treat patients unless they have this type of device, according to John Trahan, Matrevic's vice president of partner development.

Physicians using the device can quickly access a patient's medical history, including current medications, conditions, insurance information and prior injuries, by plugging the memory card into a PC equipped with a flash memory reader, according to Matrevic.

Several Dallas-based medical centers, along with about 50 physicians, will participate in the trial. Trahan said his firm plans to encourage widespread adoption of the technology by persuading health maintenance organizations to pay for the product.

HMOs, policy-makers and corporations have pushed the health care industry to seek ways to reduce medical errors ever since a 1999 report from the Washington-based Institute of Medicine revealed that as many as 98,000 people in the U.S. die annually from medical errors.

Standards Lacking

While the military and the Department of Veterans Affairs have adopted personal storage devices, the concept hasn't gained momentum in the health care industry due to a lack of standards, said Wes Rishel, an analyst at Gartner Inc. in Stamford, Conn. For a storage device "to have much impact, there has to be national adoption of the specific technology and IT standards" for creating a portable health record, he said.

But Trahan said that the technology to date has consisted of smart card devices, which have a limited storage capacity of 70 pages plus a few images. The flash memory card used in the trials can store 6,000 pages of text.

While this storage device could be useful for patients who travel, it presents a host of its own problems, according to Richard Telesca, an analyst at Cambridge-based Giga Information Group Inc.

"The issue with [storage devices] is keeping track of them and not losing them. And if you lose them, do you have a bigger issue with privacy than ... today?" Telesca said.



On the Trail of an Elusive Trojan Horse

Could a mysterious floating cursor on one engineer's screen indicate a backdoor virus?

BY MATHIAS THURMAN

I'D JUST SAT DOWN with a fresh cup of coffee when an e-mail popped up on my screen with a subject line that read: "Engineering Oracle database has been hacked." A staffer had sent the message to all of our operations management personnel, plus about seven other system and database administrators. My first thought was, "Oh, great — we've been hacked, and now the whole company knows."



SECURITY MANAGER'S JOURNAL

I made a mental note to tell the staff that in the future, if they suspect that a hacker has visited them, they shouldn't announce it to the entire company. Because of the way our environment is configured, there's a high likelihood that if there's a hack, an internal employee is responsible, rather than an inquisitive college kid.

So then I was concerned that the perpetrator might know that we were on to him and try to cover his tracks. The e-mail disclosed that the Oracle system passwords had been changed without authorization. I wouldn't immediately attribute such action to a hacker, but nevertheless, someone had started the ball rolling, and as the security manager, I had to run with it.

Mysterious Moving Cursor

In addition to news of the password situation, I had received information from an application engineer about a month earlier who reported some weird behavior: His cursor started "moving by itself, opening the Start menu" and browsing around the computer without any interaction. That bit of information concerned me then.

Now everyone thought that someone had gained remote control of one of our engineers' computers and had hacked into an Oracle database from the engineer's desktop.

Was it possible? Absolutely. However, it was highly unlikely that any person who might have gained remote control was from the outside. We use network address translation (NAT), which means that the IP addresses of our desktop computers are translated to another IP address before leaving our network. It's a common practice that we use to conserve IP address space internally. And it also provides some additional security, if configured properly.

As for that Oracle database, I immediately took an image of the system, using the Unix data dump utility to copy the entire file system to an external drive. I next had the administrator change all of the passwords on the system.

Then I received a telephone call from the manager of engineering. He told me that the password change was a legitimate one made by one of the Oracle administrators, who had forgotten to communicate it properly.

Cool — that issue seemed to be resolved. Next, I wanted to address the issue of the floating Windows NT mouse cursor. My fear was that a Trojan horse program was in the system and was allowing a third party to gain control. Although we use NAT for our internal desktops, there's always a way to bypass security. So I was still worried.

A Trojan horse is a bit different from a virus, in that it can be disguised as something legitimate and attached to, say, an e-mail message. A virus normally affects one file but can have a devastating effect on the file system or operating system.

A Trojan horse is really a backdoor program that can let a hacker gain administrative access to an infected computer at a later date. If the hacker named the Trojan horse something clever like *orgchart.ppt.exe*, attached it to an e-mail and then spoofed the e-mail to make it appear to originate from, say, the CEO, most employees would be inclined to accept the attachment and execute it.

Notice the *.exe* extension. That's a bad thing. Executable programs, when launched, are under the control of whoever programmed the executable. The problem is that unless you train your employees properly, most won't know the difference between a legitimate attachment (such as PowerPoint slides) and an executable attachment (with extensions like *.exe*, *.vbs* and *.com*).

The one rule I continue to communicate to the entire company is to not run any executable program unless it's from a trusted source and the program can be verified as legitimate. We have a filtering program that's supposed to do this automatically, but unfortunately, it wasn't configured properly and *.exe* attachments are being allowed through the e-mail gateway.

Security Checklist

Getting back to the work at hand, I needed to determine whether the engineer's desktop was infected with a Trojan horse program. Such programs are often configured to be virtually undetectable; even the best antivirus programs can't find them all.

In dealing with this security hazard, I could have simply had this engineer's desktop hard drive completely wiped clean and the system rebuilt. That's probably the most effective way to eradicate a Trojan horse, but it's also very disruptive to the end user. I decided to first have the engineer go through a checklist to determine if the computer had been infected.

We use a checklist I downloaded from the CERT Coordination Center's Web site, along with my own checklist compiled from many different sources. It's important to have multiple mechanisms for intrusion detection, and it's my job to ensure that effective tools are in place and ready to go so the staff won't have to scramble at the last minute. It took about 45 minutes for the engineer to go through the checklists before reporting that there were no indications that his system had been compromised.

I now had a dilemma. Should I trust that the checklist was comprehensive and that the engineer didn't take shortcuts? If I just let it pass as some weird phenomenon and later found that someone had gained unauthorized access, I would have some serious explaining to do. I could have run through the checklist myself, but the computer in question was located in a remote office.

Well, I can't be everyone's friend, and I'd rather be safe than sorry. So I had the IT person at the remote office wipe the system clean and rebuild it. The engineer was quite mad at me, complaining to his manager about how this was going to affect his productivity, that he had wasted his time going through the checklist, that it was just some weird computer glitch and that he hadn't downloaded an executable file or e-mail attachment.

I guess you can't be an effective security professional without gaining some resentment or being called a barrier to productivity (and other names I'm not and probably never will be privy to). But in this job, I suppose it's all in a day's work. ◗

THISWEEK'SGLOSSARY

Trojan horse: A program hidden in a seemingly innocent executable file that, when launched, may destroy data, steal account information and allow a hacker to remotely control a system to launch attacks on other systems – all without the user's knowledge.

Back Orifice: Advertised as a remote administration tool, this client/server utility functions as a Trojan horse. The hacker e-mails the server portion as a file attachment and renames it to something innocuous, such as *orgchart.ppt.exe*. When the recipient executes it, the server installs itself and automatically notifies the hacker, who can gain access to the remote computer.

LINKS:

www.symantec.com/avcenter/warn/backorifice.html: For more information on Back Orifice and other Trojan horse viruses, see this link at Symantec Corp.'s Web site.

www.cert.org/tech_tips/win_intruder_detection_checklist.html: How do you detect a Trojan horse program? The "Windows NT Intruder Detection Checklist" at the Web site of the CERT Coordination Center at Carnegie Mellon University is a good start.

www.cert.org/tech_tips/win-UNIX-system_compromise.html: Been hacked? CERT's "Steps for Recovering from a Unix or NT System Compromise" is a well-written checklist that shows how to recover.

■ This week's journal is written by a real security manager, "Mathias Thurman," whose name and employer have been disguised for obvious reasons. It's posted weekly at *www.computerworld.com* to help you and our security manager better solve security problems. Contact him at mthurman@hushmail.com or head to the Security Manager's Journal interactive forum.



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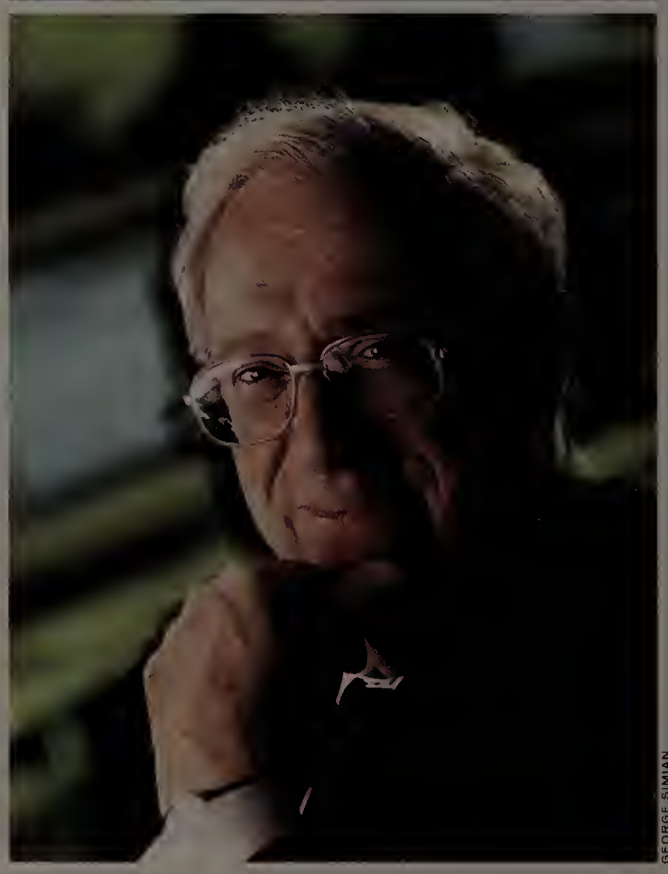
IT'S A DIFFERENT KIND OF WORLD.
YOU NEED A DIFFERENT KIND OF SOFTWARE.

Complete the Revolution

The Information Revolution won't fulfill its promise until we stop thinking as though we're still in the Industrial Revolution, according to Michael L. Dertouzos, director of MIT's Laboratory for Computer Science. After 40 years of building computers, little has changed, says Dertouzos, the author of seven books, including his latest, The Unfinished Revolution: Human-Centered Computers and What They Can Do for Us *(HarperCollins, 2001). The future of computing lies in "making systems serve humans," he says. "That must be our goal."* Computerworld *writer* **Sami Lais** *interviewed Dertouzos about the future of computing.*

WHO IS HE?

MIT futurist **Michael L. Dertouzos** says making machines serve people, instead of the reverse, will transform the way we live and work.



GEORGE SIMIAN

You talk about human-centric computing, in which the computer isn't a single device but a room where computing is around you and in the air. How is that different from pervasive computing? There is a lot of confusion between pervasive or ubiquitous computing on the one hand and human-centric computing on the other. They are not the same. Pervasive computing implies a lot of equipment, where the focus is on a lot of devices that are themselves computers. Human-centric computing, however, focuses on the human. Today, computers are hard to use. If we make them more pervasive and use more of them, there will be that much more aggravation around us. By focusing on human-centered systems, we declare that our goal is to serve humans. Whether that calls for more or less stuff is secondary.

In the future computing model you describe, interaction will be speech-activated. Why? Much of it will involve speech understanding, not just speech activation. Speech is natural for people, hence easy to use. That's why human-centered systems need to have speech. Remember, the fundamental thing that will set human-centered systems apart is that the computers will serve you. They won't care how you communicate — whatever way is most comfortable for you. Ironically, computing will follow an old model. It's one that is unsavory for humans but perfect for machines, and that is the many-dumb-servants model. The software that serves you will not take human form like a robot, nor will it have a fuzzy face and big ears. It will simply involve programs that sit there doing the things you want them to do.

Pervasive computing is beginning to be fact: With cell phones, laptops and handhelds, we can work pretty much anywhere. How long before the transformation that lets us do this and more, simply by talking to a room? Pervasive computing is easy. It's what we already have, only more of it. Human-centric computing will take a shift in thinking, and it will take time for vendors to offer hardware and software that expresses it. But work in human-centric systems goes on. It has for some time, first at the University of California, Berkeley . . . Carnegie Mellon University, Georgia Institute of Technology [and] the University of Washington. Of course, at the Oxygen Project at MIT. And a lot of work is being done in speech recognition . . . at IBM and Philips and Microsoft. We're starting to see a lot of start-ups in this area, and that's always an indication of a technology that's heating up.

What will it take to cause commercial IT developers to embrace the concept of human-centric computing? It's already happening. Microsoft has announced Hailstorm, a user-centered computer environment, as they call it, part of their .Net system. Ultimately, successful prototypes of human-centered systems will cause start-ups and big companies to go after the new forms.

You say we have to change our attitudes, too, and make them more human-centric. What do you mean? Take e-mail. We have to do something or we'll all drown in e-mail. [One survey says that people] spend an average of an hour and a half a day on e-mail. That's a ridiculous time, and it will get 10 times bigger in the coming decade, as new users join and current users devote more time to e-mail. Surely, people won't spend 15 hours a day on e-mail. And you can only do a little bit by machine. I spend an average of 18 seconds on each e-mail, because I've set up push-button-action responses, but even so, I am only delaying the arrival of my total overload point. We have to start using metadata and XML to put labels on e-mail that describe what's in the e-mail messages so that we and our machines can select or reject the e-mail that comes in. Ultimately, you and I have to change our attitudes and trash a lot of the mail we get. Just because we have become interconnected, we have not acquired the right to bother other people with our writings, nor the obligation to respond to them. E-mail is not going to change thousands of years of socialization.

Will there be a backlash against technology? Not a backlash, but how much better off we'll be with tomorrow's human-centered systems depends on the individual. Look at it this way: You can divide people into their principal components. I like to think of the individual as a four-cylinder car: The four cylinders are our physical, rational, emotional or artistic and spiritual dimensions. Most technologists run on only one or two cylinders, generally the rational and physical. Humanists run on just about the same number of cylinders: the physical and artistic. So if you're a technologist or a business person focused on planning and getting things done, you'll be incredibly better off with computers. If you're an artist, you'll be only marginally better off. You'll have tools to do your creative work, but you won't be able to write or paint better. And if you're a monk, forget it. You won't be better off, because spiritual activity is primarily internal to people. I'd like to see us all learn how to run on all four cylinders. To me, that's what it means to be human.

CEOs want their CIOs to be technology visionaries who also deliver a solid return on investment. In this context, how does an IT manager embrace the human-centric future you describe? Sorry to toot my own horn, but [he] starts by reading my book. Then, [he] browses the Web and reads about these other efforts I've told you about. [Then he] undergoes a total brainwash by focusing on having systems serve people, rather than the other way around. Look at today's speech systems. What are the 200 start-ups doing with speech? Can you use speech in your business? Then look at automation. Can you automate stuff people do that does not require intelligence, so you can relieve them of this work? Can you help your people work across space and time more effectively? Can you customize your systems to your people's individual needs? It's not enough to say you support the ideas. You must show it in every action. ◗



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Buying PCs For The Enterprise

Corporate PC buyers rank flexibility and total cost of ownership well ahead of specific hardware features. Smart vendors are meeting those needs. By Edmond X. DeJesus

WHAT DO YOU LOOK FOR in a new desktop PC? A big, bright screen? Zippy new processor? Capacious hard drive? Acres of RAM? Sorry, none of these is a real concern for corporate PC buyers. What they're looking for probably isn't even in the machine.

Numerous studies have shown that the price of a new computer is only a small part of the total cost of ownership (TCO). Support, maintenance and other intangibles contribute far more heavily to the sum. Those who buy desktop computers by the tens, hundreds or thousands have taken this lesson to heart. When they go shopping, therefore, their list of desired features has very little to do with hardware.

Smart vendors are paying attention to this and adjusting their offerings accordingly.

Hardware Necessities

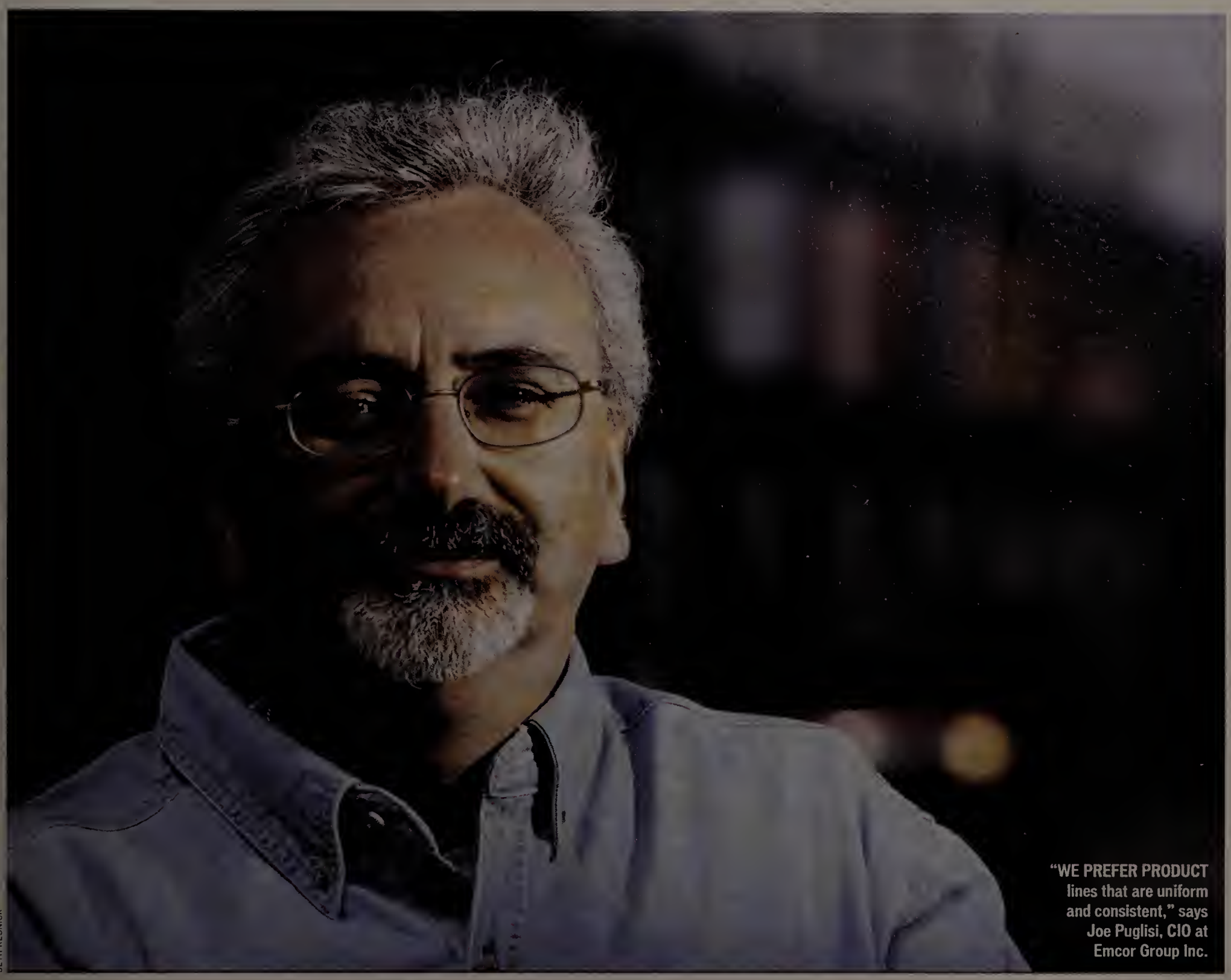
Corporate buyers recognize that certain aspects of candidate PCs are essential, including the following:

Solid performance at reasonable price. Whenever you see magazine reviews of PCs, one editor's choice will inevitably be a supermachine to die for: primo components, primo design, at a primo price. Just turn the page. Corporate buyers know that their users probably aren't mapping the human genome or plotting trajectories to Saturn. They're doing word processing, order entry, sales contact management, programming and other essential business tasks. They need solid, competent machines at a reasonable price, not the latest whiz-bang. "Mainstream machines from respected vendors are going to do the job fine," says Bob Jorgenson, a spokesman for The Boeing Co. in Seattle. Buyers know that, so they're not looking for more.

Operating-system-ready. "A change in operating system is the most disruptive upgrade an enterprise has to face," says Paul Neilson, vice president of technical support at Monster.com, an online job-placement service in Maynard, Mass. That's why many corporate buyers want their machines to be able to handle current operating systems and anticipated new ones. While many enterprises use Windows 9x or NT, they must be able to make a possible transition to Windows 2000 or Me. In addition, any planning for three to five years into the future must take into account the appearance of even newer operating systems. Primarily, that means having sufficient hard disk space and RAM. What constitutes "sufficient" is in the eye of the buyer and not in the rosy "minimum requirements" offered by operating system vendors.

Connectivity. Networked machines are a given in corporate life, and Internet-worked machines are becoming a given. Buyers need machines equipped with reliable network interface cards or even wireless LAN capabilities. "With fewer cables to worry about, wireless LANs contribute to the flexibility of the workplace and the simplicity of PC deployment," says Matt Heller, vice president of operations at GoTo.com Inc. in Pasadena, Calif., which provides online search services to tens of thousands of affiliate partners and has more than 30,000 advertisers. Many organizations are planning for Internet-based applications and need machines ready to make fast, reliable and secure connections. "Connection performance and ports are prime factors for us," says Chris Carrara, IT manager at Sartorius AG, a global lab technology manufacturer in Goettingen, Germany.

Laptops as desktops. Notebook computers, whether docked to a keyboard and external monitor or used au naturel, are supplanting traditional desktops as the standard office machine at many companies. The reasons include flexibility, mobility and productivity. "We're growing our business. It's easier for IS to hand an employee a notebook than to install a desktop," says Heller. If employees need to move within a facility, or even to a new facility, it's simpler for them to pick up their notebook and go there than it is to



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"WE PREFER PRODUCT lines that are uniform and consistent," says Joe Puglisi, CIO at Emcor Group Inc.

pack, ship and reconnect a desktop. "Notebooks make it possible for employees to remain productive when away from the office, whether at home or on the road," says Jorgenson. Of course, even deskbound employees can use a notebook.

The traditional arguments against notebooks are their price compared with desktops, the rougher handling they endure and the difficulty of supporting machines away from the office. For many organizations, the higher price of laptops isn't significant given the increased productivity and ease of deployment they offer. "We look for rugged notebooks that stand up to all environments and frequent travel," says J.B. King, CIO at Fluor Signature Services, a unit of Fluor Corp., an engineering and construction firm in Aliso Viejo, Calif. Standard testing for notebook robustness is becoming part of vendors' pitches.

Finally, buyers tend to favor vendors who can demonstrate painless nationwide — and worldwide — support for their machines.

Cost Control

However compelling a machine's technology, corporate buyers won't touch it unless its vendor can satisfy essential nontechnology requirements. The following considerations all contribute to reducing total cost of ownership:

Ease of purchase and deployment. Buyers want purchasing to be an easy process, and you'd think vendors would feel the same way. However, while some vendors have made great efforts in smoothing the potholes in their ordering processes, others haven't. Vendors that offer online ordering and extranet support for customers are more appealing to buyers.

"The ability to track orders online from inception to delivery is a plus," says Joe Puglisi, CIO at Emcor Group Inc., a global construction conglomerate in Norwalk, Conn. Dell Computer Corp. is one supplier that offers such tracking. Speed of delivery aids in rapid deployment to employees, and international delivery boosts global rollouts.

Besides getting it fast, corporate buyers want to get it right, too. Vendors that offer buyer-specific hardware configurations, such as Compaq Computer Corp. and Dell, earn the gold stars here. "It's important that we are able to supply standard configurations to remote sales partners with nationwide support," says Rick Beardsley, IT director at Indoff Inc., a fast-growing drop-ship distributor in St. Louis. Software preconfiguration also saves time and ensures uniformity.

"Dell allows us to create an image of all required software — operating system, office applications, even our own customized and proprietary apps — that they then load onto machines before they ship," says Neilson. This saves the systems folks from loading and testing the software themselves before handing off to the employees.

Stable platform. All this preconfigured software isn't worth a whistle if a product line changes or, even worse, ceases production. Corporate buyers like product lines that don't change, which seems counter to the vendor tendency to constantly tweak and fiddle with machines in the never-ending race to be, momentarily, the best. "We prefer product lines that are uniform and consistent," says Puglisi.

King concurs, adding, "Ideally, we favor machines we can keep buying for at least 18 months." You can't blame them. Every component change means another driver to keep track of, another wrinkle in service and support, another potential glitch to bog down IT staffers and rev up the cost meter.

Stability is important for other reasons, too. One goal of a successful corporate PC purchase is to minimize the impact on the user. Ideally, the employee should be able to start using his new machine as soon as he gets it, with no down time or lost productivity. This implies minimal change for the user. The more the new computer looks and acts like the old computer, the better. Most buyers are shooting for a low learning curve and a simple migration. That's because organizations realize that even if they don't have a budget for new computer instruction, they still have to pay for that education. If they reduce that cost, they have a winner.

Platform stability also influences service and support, especially with regard to spare parts. "It's no good maintaining a complete inventory of spares we can rapidly swap in and out if the new machine doesn't use the same components," says Heller. Vendors who shop around to buy equivalent parts for the machines they sell may be saving money in one way. However, to corporate buyers, nothing short of identical machines will meet their criteria for simple support. They're going to look under the hood, and they'd better see the same thing every time they do.

Service and support. Corporate buyers aren't interested in 30-minute waits when they call a vendor's tech support hotline. If they don't get fast and accurate resolution of all difficulties, they'll take their business elsewhere. If a vendor has been doing its homework, it will be using the known hardware and software configurations of the machines provided. In this way, the uniformity of product line and the detailed preconfiguring of machines can work to the vendor's advantage.

Vendors like Dell shrewdly enlist the buyer's own staff to provide expert frontline service for their machines. An online system of training allows company employees to earn certified technician accreditation. This is a major win-win strategy. It allows customers to get the fastest service and support imaginable, since their own employees are providing it. That gets users up and running again fast. It also allows the vendor to minimize calls and on-site visits. The Dell program has an additional plus. "Once an Emcor employee becomes an official technician, they can order spare parts more rapidly and simply than by going through the usual channels," says Puglisi.

Vendor support should be ubiquitous. If a corporate buyer sees a vendor with only a handful of service locations, he's going to look for another vendor. Organizations want to make sure that their users can get service wherever they may be, especially on the road. Some vendors arrange for extranet support so remote users can obtain access to software and other files from the Web. That can save a lot of time and difficulties on both ends.

Global presence. Many corporations have an international presence and prefer vendors that are also global. Part of this involves support: Companies want their overseas travelers to have vendor locations nearby. However, more of it has to do with initial deployment. If a company is opening an office in a new country, managers don't want their employees twiddling their thumbs waiting for PCs shipped from the home office. They want a local vendor representative who can provide the same machine as the folks back home. Vendors that can substantiate claims to international availability have great leverage.

"One reason we chose Toshiba is their truly international scope," says GoTo.com's Heller. "As we expand globally, we can be confident our people are using the same devices and getting the same support, everywhere."

Relationship. Don't we all want someone we can trust? Corporate PC buyers are no different. They want a vendor they can build a relationship with, and that involves qualities beyond price and components. After all, a company relies on a vendor's products to support its business. Shouldn't the two parties treat their dealings with each other as more than a transaction? "One [chief technology officer] of a major outsourcing provider ranks a trustworthy and dependable relationship as one of their top criteria," says Richard Cheston, director of manageability at IBM's Personal Computing Division.

Some vendors clearly don't think so. They want to move boxes, period. However, for those vendors willing to make a commitment, corporate PC buyers are more than ready to reciprocate. They'll do almost anything to lower TCO.

DeJesus (dejesus@compuserve.com) is a freelance technical writer in Norwood, Mass.

Corporate PC Buyer's Checklist

Vendor name	Vendor 1	Vendor 2	Vendor 3	Vendor 4
PC model				
Hardware				
Notebook OK?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Capable for ordinary uses?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Supports current operating system?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Supports projected future OS?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Includes network interface card?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Includes wireless LAN?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Includes modem?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
TOTAL COST OF OWNERSHIP				
Easy ordering or online ordering?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Order tracking?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Customer access to extranet?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Fast delivery?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Customer-specific configuration?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Software preconfiguration?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Product available long term?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Same product components?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Product available globally?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Enough support locations?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Support available globally?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Train customer technicians?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Software available online?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Troubleshooting available online?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No
Good relationship with vendor?	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No	❑ Yes ❑ No

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Virus signature updates are a continuing headache for security managers, who want better tools. But can vendors deliver? By Robert L. Scheier

LIKE ANY GOOD security manager, Phill Bakker can't be too careful.

As senior security architect at eHealthDirect Inc., a Lexington, Mass.-based health care application service provider, he's responsible for safeguarding sensitive health care claims data. Like many security professionals, he uses antivirus products from several vendors to be sure he always gets the latest virus patches and descriptions.

His problem, though, is making sure all of the updates from all of the vendors are distributed at the right time to the more than 150 workstations and approximately 50 servers on his network. He and one staff member must do much of that work manually, which chews up time and can lead to errors. "There are a dozen or more companies manufacturing antivirus-type products. It would be really nice to see all of those companies get together and have a common console" to help manage the update process, says Bakker.

But until antivirus vendors release such a tool, security administrators must rely on a hodgepodge of update tools, manual procedures and a "defense in depth" strategy that extends scanning to servers, such as those that handle e-mail, in hopes of catching viruses before they hit the desktop.

Most antivirus tools today work by scanning for specific known viruses, looking for "signatures" such as particular file names or certain types of e-mail attachments. But with as many as a dozen major vendors issuing regular signature updates, keeping hundreds of desktops and servers up-to-date can be more work than busy support staffs can handle. And some antivirus products also require updates for the engine that scans for viruses.

Jesper Johansson, an assistant professor of information systems at Boston University, cites one major company, which he declined to identify, whose PCs' virus lists haven't been updated since the machines were deployed 18 months ago.

According to John Pescatore, an analyst at Stamford, Conn.-based Gartner Inc., "At Gartner, we're declaring signature-based antiviral [protection] at the desktop to be dead. It's providing near-zero value today, mainly because of the lag in updating the signatures."

Updating is easier on servers because there are fewer of them than there are desktops or notebooks, and servers spend more time linked to the Web, where they can capture virus updates distributed by vendors. But security managers must still make sure every system has the proper updates to protect their companies from hackers.

Sean Mahon, manager of security at an East Coast financial services firm, estimates that he's able to keep 97% of his Windows-based systems up-to-date with the latest virus definitions from Symantec Corp. in Cupertino, Calif. "I want to bring it up to 99.9999%," he says, adding that he wants to automate the update process to stop virus attacks more quickly.

Rising Threat

The need for up-to-date virus protection is greater than ever before, say security managers and analysts, because of the increasing importance of e-commerce and e-mail, which expose corporate systems to more hackers.

Some newer viruses can infect systems running Microsoft Corp.'s Outlook and Outlook Express e-mail clients when a user first opens an infected e-mail, unlike earlier viruses that required users to open attachments, says Brett Eldridge, co-founder of OneSecure Inc., a Denver-based firm that builds and manages secure networks. Microsoft has issued a patch against such attacks, he says, but "you have to distribute that patch to all your users," including those who aren't linked to the corporate network.

Buying and distributing updates from multiple vendors may be a headache, but it's crucial that you get the fix for any future virus as soon as it becomes available. "I can't rely on just one manufacturer," because it's impossible to know which vendor might come out with the solution to the next Melissa virus fastest, says Bakker.

With all this manual work, it's no wonder security administrators long for a single tool that would let them schedule virus updates, coordinate their rollout and confirm when they've been completed.

Several leading antivirus vendors say they have no plans to develop such a cross-platform console. "There is no need for multivendor antivirus" protection, because the major antivirus vendors issue patches for new viruses "within a couple of hours of each other," says Gary Ulaner, group product manager for Symantec's Norton AntiVirus Corporate Edition. Besides, he adds, any vendor that built such a console "would be basically admitting that their full complement of products is not a good approach."

However, McAfee, the antivirus division of Santa Clara, Calif.-based Network Associates Inc., plans to take the first step toward such a console, with the expected release of Version 2.0 of its ePolicy Orchestrator this month, says product marketing manager Ryan McGee. It will provide a networkwide view of which client machines are protected not only by McAfee but also by Symantec and Cupertino, Calif.-based Trend Micro Inc., he says, with future releases possibly adding the ability to monitor servers and other devices to determine if they have updated virus descriptions. But producing a console that could actually manage tools from multiple vendors would require closer cooperation among antivirus vendors than exists now, McGee says.

Making Do

In the meantime, security managers are using a mix of vendor-specific update tools, manual processes and some third-party software to perform virus updates. One method is to download the latest antivirus definitions as part of the user's log-in to the network.

Andy Benson, network manager at Schwartz Communications Inc., runs the Norton AntiVirus product for Net-

MANAGING THE Virus



JOHN CURTIS

> It would be really nice to see all of those [antivirus software] companies get together and have a common console.
>
> PHILL BAKKER, SENIOR SECURITY ARCHITECT, EHEALTHDIRECT INC.

Ware and for Windows NT at the Waltham, Mass.-based public relations agency. Every Monday, he makes the download of any available virus updates an optional part of the log-in process for his 200 users, which he estimates keeps 90% of his client systems updated. While the updates take too long for most remote users, he says, those systems are usually updated when a user returns to the office.

For each antivirus product, security managers can use the management console included within the products, such as the Symantec System Center central management console and McAfee's ePolicy Orchestrator. Companies running Microsoft Corp.'s Systems Management Server (SMS) can use software distribution tools written for SMS, such as Cognet 3.5 from Cognet Corp. in Valhalla, N.Y. Mahon uses both an update written into the log-in script and the Cognet tool to distribute virus definitions to his users.

Another option, says Eldridge, is Mountain View, Calif.-based Marimba Inc.'s change management tools based on its Castanet and Timbale content distribution technology.

Developing a Strategy

Until someone discovers the Holy Grail of antivirus management, analysts and security managers recommend making antivirus updates as easy as possible for users by creating a defense that doesn't rely only on desktop antivirus updates, along with fine-tuning your procedures for finding and stopping virus outbreaks. This approach requires "putting in multiple layers of security, so if one fails, another one will catch something," says Eldridge.

Besides putting antivirus packages on every client, for example, many administrators use virus scanners on e-mail servers. Keeping client-based scanners up-to-date is vital, because viruses in encrypted e-mail can escape server-based scanners, Eldridge says.

Eventually, the need to perform such cumbersome updates at the desktop will fade as antivirus vendors produce tools that identify viruses by detecting their suspicious behavior, not by comparing them to a list of known virus signatures.

Pescatore predicts that such behavior-based tools will be most popular on harder-to-update desktops and notebooks. Signature-based antivirus tools will continue to be used on e-mail and other servers, he says, because it takes less processing power to scan for a list of known viruses than to dynamically analyze the behavior of incoming files or e-mail.

My Kingdom For a Console

IT managers say they want antivirus management tools that can:

- **Coordinate** and manage antivirus updates from multiple vendors.
- **Monitor** client and server hardware for current antivirus definitions and provide reports to security managers.
- **Coordinate,** schedule and quarantine updates automatically until they're checked for safety.
- **Provide** alerts when new antivirus definitions are released, and take preventive measures (such as blocking certain e-mail attachment types) while waiting for vendors to release virus patches.

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McAfee's Outbreak Manager technology, which ships in several of the company's antivirus tools, allows administrators to define suspicious behavior, such as when an e-mail attachment tries to read a user's e-mail address book, and to define which actions to take if the behavior is spotted. Symantec already ships its Bloodhound technology, which examines code for suspicious behavior, in the scanning engine used throughout its product line, says Ulaner.

But such heuristic tools will only complement rather than replace signature-based antivirus weapons for the foreseeable future, observers say. And that means security managers will keep searching for easier ways to keep their antivirus weapons up-to-date. ◗

Scheier is a freelance writer in Boylston, Mass.

rlhreat

Start-up Profits From E-Legal Activities

DataCert automates the bill tracking process for corporate legal departments

BY AMY HELEN JOHNSON

THE HOME DEPOT Inc. receives 8,000 legal bills every month, says Libby Troughton, the chief systems specialist in the building supply retailer's legal department. That volume of paper makes it difficult to monitor the law firms — which Home Depot pays on a per-case basis. So Troughton is working on a project with DataCert Inc. to automate the bill presentment and payment processes.

The new system will give Home Depot a way to collect and analyze its billing data, she says. It will also help the Atlanta-based retailer save money by reducing the number of clerical employees needed to handle accounting chores, monitoring compliance with corporate guidelines — such as checking that outside firms adhere to negotiated rates for things like faxing and making copies, and cutting checks faster so the company can earn discounts for speedy payment.

Setting a Precedent

Although legal departments have wanted to move to electronic billing for years, there isn't a common document format used throughout the industry that will ease the process, says Eric M. Elfman, president and CEO of Houston-based DataCert. Many small law firms still generate unique paper invoices, he says. By acting as a middleman — validating and reformatting legal invoices to comply with XML data schemata like the Legal Electronic Data Exchange Standard 2000 — DataCert's ShareDoc/Legal Web service can offer customers the clean XML-formatted data that's necessary for online transactions.

Elfman says that the ShareDoc/Legal service works even if the source document is a print file. All DataCert needs is a digital representation from which to scrape data; it will generate a translation scheme to convert from the outside counsel's file format to the client's format.

Law firms can send bills to their corporate clients by logging onto the ShareDoc/Legal Web site, choosing which client should receive the bill and then uploading the document. ShareDoc/Legal does the translation and validation, then sends the resulting XML data to the client company. The law firms don't have to install any hardware or software.

By using a Web interface, says Elfman, DataCert can enforce security through public-key infrastructure encryption and digital certificates without modifying the law firms' systems. Because it uses encryption throughout the system, DataCert can ensure the integrity of any document transferred through ShareDoc/Legal, including pleadings, briefs and depositions. These documents pass through untouched, with no translation or formatting required.

ShareDoc/Legal works with DataCert's Windows 2000-based WebManager and FlowManager software. WebManager is an XML viewer application that lets legal departments see invoices. FlowManager routes billing data and handles the approvals process. DataCert has integrated its software with the management systems most commonly used by legal departments, says Elfman. That allows customers like Home Depot to directly enter information from bills into those systems for analysis.

Integration Issues

The fact that DataCert's products can be integrated with existing systems is a key part of the company's value, says Matthew Kovar, an analyst at The Yankee Group in Boston. Because legal departments generally aren't technically sophisticated, he says, DataCert can get them running more quickly than if they built a similar system in-house.

But DataCert doesn't integrate into financial systems, says Kovar, so users must use existing payment methods. In the future, enough companies may use DataCert to make it appealing for someone to partner with the company on a payment system, he says. But DataCert's executives aren't planning on that integration.

Elfman says the company plans to expand the number of platforms that WebManager and FlowManager support. The products currently run on Windows; Elfman says he wants to target Unix.

The company also plans to expand into new niches. The secure communications technology is agnostic, says Elfman, so DataCert can easily move into markets that aren't yet moving much of their data electronically, such as insurance and health care. ◗

Johnson is a Computerworld *contributing writer in Seattle.*



PAM FRANCIS

CEO ERIC M. ELFMAN says DataCert has plans to move into new markets such as health care and insurance.

DataCert Inc.

Location: 3100 Timmons, Suite 310, Houston, Texas 77027

Telephone: (713) 572-3282

Web: *www.datacert.com*

The technology: Secure legal invoice and document exchange

Why it's worth watching: DataCert's technology translates invoices into standard formats for easier processing. Security features ensure document integrity.

Company officers:
- Eric M. Elfman, co-founder, president and CEO
- Eric A. Smith, co-founder and chief technology officer
- Geoff S. Elfman, co-founder and vice president of technical services

Milestones:
- April 1998: Company founded
- January 1999: ShareDoc/Legal launched
- August 1999: UPS-branded version of ShareDoc debuts
- July 2000: First round of venture funding

Employees: 26; workforce growing at 500% per year

Burn money: $7.7 million from United Parcel Service Inc., angel investors and co-founders

Products/pricing: ShareDoc/Legal service costs $18,000 per year for corporations, $2,000 per year for outside counsel firms; WebManager, $15,000; FlowManager, $50,000.

Customers: AT&T Corp., The Boeing Co., Compaq Computer Corp., Philip Morris Cos. and others

Partners: UPS, Elite Information Group Inc., RSA Security Inc., Compinfo Inc. and Bridgeway Software Inc.

Red flags for IT:
- Product doesn't integrate with back-office financial systems.
- Software currently works only with Windows-based systems.

COMPUTERWORLD emerging companies

[the buzz] STATE OF THE MARKET

Legal Maneuvers

DataCert is in a hot market, and its focus on the legal niche is smart, says Matt Kovar, an analyst at The Yankee Group. He estimates that the market for secure content delivery will grow from an estimated $450 million this year to more than $2 billion in 2005. The market encompasses everything from copyrighted material to proprietary business information to bill presentment and payment.

The market is in a hypergrowth phase, says Kovar, pushed by businesses wanting to digitize a wide variety of material and transmit it via the Internet. No single technology has emerged as the de facto standard, but encryption, authentication and receipt notification and confirmation are key elements of any system, he says.

Kovar says he also likes DataCert's plan to expand into insurance and medical niches. Organizations in those fields have big budgets and high-value transactions, with high privacy and confidentiality needs, he says. "They're certainly ripe for this environment," says Kovar.

DataCert has limited competition, he adds. One group includes systems integrators that build extranets. But in the realm of secure document delivery, no other company has exactly the same service, he says, although DataCert has competitors in both the bill presentment and document transmission markets.

RealLegal Inc.

Denver

www.documentforum.com

RealLegal doesn't compete with DataCert in the area of bill presentment and payment, but it does have services for the secure transmission of legal documents. The electronic transcription service will deliver documents from a court reporter via e-mail or on diskette. Electronic signature technology verifies the integrity of the document. RealLegal also offers Web-based products for sharing transcripts and depositions.

MessagingDirect Ltd.

Edmonton, Alberta

www.messagingdirect.com

MessagingDirect's M-Bill billing software competes with DataCert's products, but it isn't directed specifically at the legal community. The bill arrives in the customer's e-mail and incorporates payment options and procedures, unlike DataCert's ShareDoc/Legal. Like DataCert, M-Bill also authenticates the user's identity and ensures the integrity of the document being delivered.

– Amy Helen Johnson

The New Security Pro

As IT security becomes a major priority for most companies, the role of the security professional is changing. By Zachary Tobias

IT'S NO SECRET that corporate IT systems are constantly threatened by hacker attacks and virus outbreaks. But only recently have companies come to realize the potential dollar costs of security lapses.

"The really bad security breaches that would make the hair on the back of your neck stand up are not being reported [in the media]," says David Foote, a managing partner at Foote Partners LLC, a New Canaan, Conn.-based research and consulting firm specializing in the IT workforce. "But companies know about them, and they're scared."

As companies place an increased emphasis on security, says Foote, the role of the security professional is changing from a strictly back-office IT support role to one that's strategically tied in with the entire company.

"The stakes are high," says Foote, who is also a *Computerworld* columnist. "And the higher the stakes get, the more [security] is a business issue."

That means security professionals, especially those in top-level positions, will not only have to master technology to protect a company's IT systems, but they will also need to understand a company's entire business and be able to pinpoint which security breaches most threaten its bottom line.

Here's someone who's doing just that and is exactly the type of security professional companies will need most in the years to come.

Name: Chuck Ryan
Title: Director of information security
Company: Molex Inc., a 19,000-employee manufacturer of electrical and fiber-optic connection systems in Lisle, Ill.
Previous experience: Ryan is one of those experienced hands who were there in the early days of corporate IT and have watched their careers grow since. He graduated in 1982 from The Citadel in Charleston, S.C., with a bachelor's degree in math and computer science. He was soon installing and tuning early-model operating systems at companies such as Pittsburgh-based aluminum giant Alcoa Inc.

In the early 1990s, when the field of IT security was just being born, Ryan landed a job as a data security administrator at Glaxo Inc., a pharmaceutical company in Research Triangle Park, N.C. He set security policy for a workforce of approximately 70,000 at Glaxo.

Ryan's experience gave him a thorough knowledge of the technical side of security, for example how to combat viruses and set up firewalls. He says those skills are important for anyone in the profession. But he also emphasizes the importance of good communication and business skills.

"Tools come and go," Ryan says of security technology. "But policy is the foundation, what makes things happen."

Responsibilities: At Molex, Ryan decides what the company's security policies will be, relays them to employees and does internal audits to make sure those guidelines are being followed.

To protect the company from virus attacks, for example, Ryan decides what antivirus software will be installed on employees' computers and also writes instructions that employees at all levels of the company can understand.

Ryan says many security professionals make the mistake of focusing too narrowly on technology. He works closely with departments across the entire company to make sure that his policies are actually accomplishing what they're supposed to.

That's especially challenging — and important — in a global company like Molex. Predicting how workers will deal with something like a virus outbreak is easier said than done when you have offices as far away as Ukraine and Singapore, Ryan says.

"You always have a preconceived notion of how the organization works," says Ryan. "But you have to go [to each country] to understand exactly what is going on."

And that's exactly what Ryan did. Shortly after he was hired, he toured Molex offices in Asia, Europe and Latin America. He found big differences in the way offices in different countries used technology — variations that would have to be accounted for in the company's security policies.

For example, a security policy might tell employees to go to an IT help desk when they encounter a virus attack, but the instruction won't make much sense in an office that uses roving IT support professionals instead of help desks, as Ryan found in some of the foreign offices he visited.

Now, Ryan sends his new policies to managers throughout the world for review. He also keeps in close contact with those managers by telephone and e-mail to make sure the policies are effective.

Working across national borders takes strong cross-cultural skills, says Ryan, but he also needs to be a good communicator and leader at the home office.

As the only employee specifically charged with IT security, he works especially closely with infrastructure managers and systems analysts to make sure they're making security a priority. He says he's a strong believer in the notion that security should be integrated into the work of the entire IT team and not limited to security specialists.

"I've been in environments where . . . there was a barrier between the two groups," Ryan says. "The security folks would almost talk down to the infrastructure group. You don't get anything done in a situation like that." ◗

Tobias is a freelance writer in Santa Cruz, Calif.

CHUCK RYAN

Job title: Director of information security

Company and location: Molex Inc., Lisle, Ill.

Nature of his work: Sets security policy and performs internal audits to make sure security guidelines are followed.

How he got the job: Ryan was contacted about the position by a recruiter specializing in placing security professionals.

Skills required: Thorough knowledge of IT infrastructure and IT security technology like firewalls and antivirus software is a must. But Ryan says that good writing, communication and business skills are also indispensable for anyone setting security policy.

Training needed: Ryan's only formal degree is a bachelor's degree in math with a focus on computer science, which he got in the early 1980s. He picked up most of his skills on the job, which he says is true of most security professionals. Becoming a Certified Information System Security Professional four years ago upped the number of job offers he gets, and he advises other security professionals to get the certification.

Salary potential: Ryan says most security professionals earn $100,000 to $200,000 per year.

Career path: "There's no end to what I could do careerwise," says Ryan. He's constantly getting job offers, since security professionals are in such high demand. His mix of writing and technical skills also sets him in good stead for a wide range of other business roles.

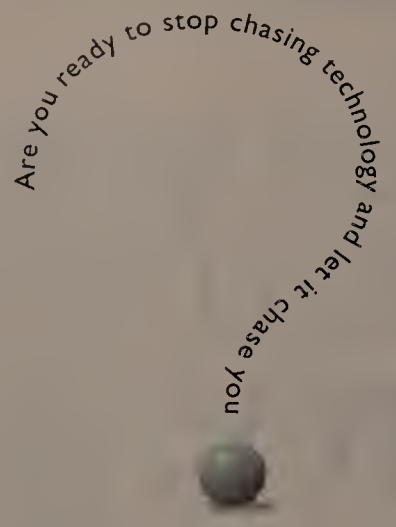


MARC BERLOW

"THERE'S no end to what I could do careerwise," says Molex's Chuck Ryan.

MOREONLINE

For more security-related news, analysis, resources and interactive discussions, go to **www.computerworld.com/security**



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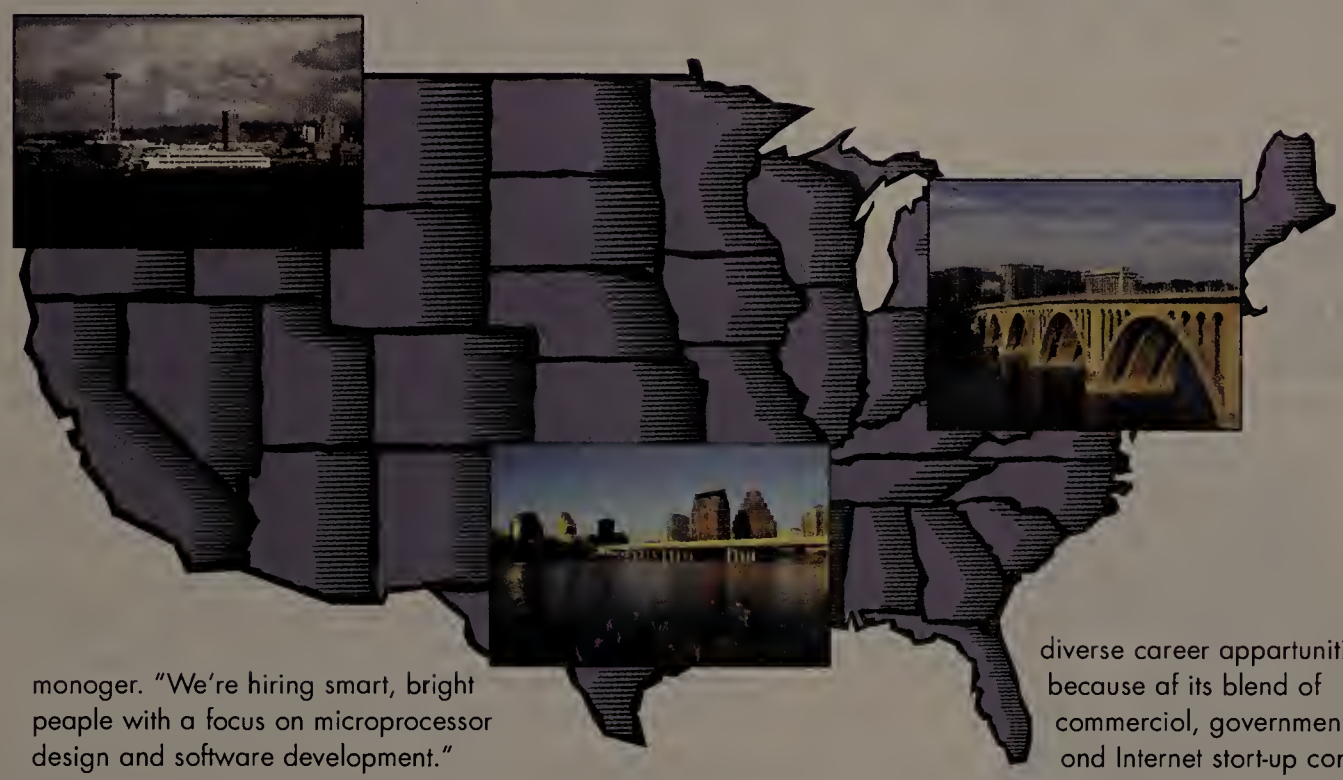
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IT careers

HOT PLACES TO WORK: Austin, D.C., Seattle

The element that makes or breaks informotion technology companies or professions is compelling work – o true innavotion thot secures a competitive position. And compelling wark continues in these IT hot spots, providing new chollenges and spowning the next generotion af the IT industry.



Ahaza Systems Inc. is among those leoding the woy. The Seattle-based company is an Internet infrostructure compony dedicoted ta develaping network systems designed ta keep dato troffic moving ot moximum speed. "We ore focused on building a suite of next-generotion switching ond routing solutions for enterprise ond Internet service providers," says Kirsten Joyce, director of morketing. The campany, whose founder Mike Almquist wos the chief technolagy officer ond co-founder of F5 Networks, began ramping up in Jonuory. "We plan to lounch our first products in the fall."

To develop the new suite of switching, cocheing ond routing solutions, **Ahaza** is hiring electrical engineers, hordwore orchitects and softwore developers. "Our success depends on hiring the right people," Joyce odds. "We ore a well-funded stortup thot is working on cutting-edge technology. It doesn't get much better thon this."

Another Seattle upstart is **Indaba Communications** (the Zulu word for "conference of wise people"). **Indaba's** gool is to develop a platform small enough to sit on a desktop, reploces your phone ond becomes o complete communications oppliance for control and connectivity for real-time simultaneous interoction with o lorge number of remotely locoted participants. The compony is olso developing a server and softwore backend to monage the plotform ond ossocioted opplicotions. "Mony times, companies are focused on advonces to previously created technology. Not so at **Indaba**," says Tim Poole, director of human resources ond staffing. "We ore developing new ond compelling products for the next generotion of communications."

To develop the technology, **Indaba** is hiring operating systems engineers – "what we call kernel hockers," says Poole. "We're looking for o person's ability to resolve complex issues thot hove not yet been resolved. You have to be up for research and for enormous technical chollenges. In exchonge, we offer chollenging work, o greot location ond a compony that truly respects its people. When we hire, we use o fairly rigorous process to ossure the fit is equally right for the candidate and for the compony."

Heod south from Seottle, to Austin, and **Advanced Micro Devices** is olso working hord to develop entirely new technologies. "We're hiring in o variety of oreos," soys Shirley Wolloce, employment monoger. "We're hiring smart, bright peaple with a focus on microprocessor design and software development."

Wallace likes to soy thot **AMD** is built on solid core AMD values. As the primory competitor for Intel, "our customers' success is our success. We seek to create ond maintain lasting relationships based on trust ond shored vision," soys Wolloce. The company continues to invest heavily in reseorch ond development with mojor locotions in Austin, California and now Dresden, Germany. "Supporting people hos olwoys been our montro here ot **AMD**," she odds. "When people come here, they see ond feel thot, everywhere. As on example, we continue to reward performance – when other companies have cut back. This is olso one of **AMD's** core volues – people first and products and profits will follow."

Indaba and **Ahaza** could fit os deportments within **AMD**, which now employs 14,000 people worldwide. "Despite thot size, we encouroge people to weor different hots, ond we keep our teams fairly small and agile," Wallace explains. "We ore a leading technicol company in the flosh and microprocessor businesses, where you must have a passion for being on the leoding edge of technology development. You work along side experts at **AMD**, and we're dedicated to getting leading-edge technologies to our fob floor's before our competition."

Heod ocross country to Washington, D.C., ond the mix of commercial ond government sector information technology needs continues to support o thriving job morket. **PricewaterhouseCoopers'** Mark Bradley, recruiting director for the Woshington Consulting Proctice, soys thot while career opportunities hove slowed in other regions, the D.C. market remoins strong. "The D.C. metro oreo offers unique and diverse career appartunities because af its blend of commerciol, government ond Internet stort-up consulting companies," says Brodley. "This combination of services ond industry hos helped put D.C. on the employment map."

PricewaterhouseCoopers offers o full spectrum of services to its clients. "Working in the government sector gives us the opportunity ta improve ond, in some cases, chonge the woy our government functions," says Bradley. "We offer a wide arroy of technology services, to include e-business, enterprise opplication integration, enterprise resource planning and various web-based application services. We look for people who are multi-dimensional, who con contribute in multiple woys to a variety of projects and clients." The firm hires new college groduotes, MBA ond groduate students, as well as experienced prafessianals.

Bradley states, "Unlike mony consulting firms, we do not hire people to fill slots on o job. We view each hire as a new, long-term, professionol relotionship. Our consultants often move from project to project, diversifying their skills and experience, thereby improving their value to the firm ond to the market in general. We work hord at accurately mapping someone's skills and interests with the needs of our clients. The single greotest attribute we have is our people."

IT careers

For more job opportunities in Austin, Washington, D.C. and Seattle, turn to the pages of ITcareers.

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SITE TECHNICIANS: (Hilton Head SC & Baltimore, MD): Experience in Windows, UNIX, networking equipment, sensor technology, lasers, relay controls, process controls and/or industrial electronics. 2-Year EE technical degree or equivalent training. Email: mary.duppler@lmco.com; Job Code ST0401. EOE

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* Systems Analysts--to analyze existing info systems & develop new systems. Req'd.: Bach. Deg. in Comp. Sci., Math, Eng'g., or a related discipline & 2 yrs exp. as Systems Analyst or in Software Development. Must have exp. w/COBOL, ORACLE, SQL, UNIX & WindowsNT.
* Systems Analysts (Jr.)-- to prepare workflow charts & diagrams with details of existing & proposed information systems. Req'd.: Bach. Deg. in Comp. Sci., Math, Eng'g., or a related discipline & 1 yr. exp. as Systems Analyst or in Software Development. Must have exp. w/C, ORACLE & UNIX.

Send resume to: Amdocs, Inc., Attn.: Amy Skalski, 1390 Timberlake Manor Parkway, Box STAM10, Chesterfield, MO 63017. Fax: 314-212-7500. jobs@amdocs.com

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Senior Programmer Analyst. Work w/ clinical trials data. Provide support for creating & maintaining programs for: data entry, mgmt, & validation; statistical report generation; & program validation. Assists Data Mgmt & Biostatistics departments w/ developing tools & techs to improve process efficiencies. Must communicate effectively w/n multi-disciplinary project team to complete assigned tasks on time & w/n budget. Reqs: BS/BS in biological, statistical, engg, comp sci, or sim area, w/ 4 yrs relevant exp; proficency w/ SAS, SOL, or PL/SQL; understanding of relational databases, or exp working w/ large complex data sys; understanding SAS datastep programm, macros, & report generation; good communication skills & supervisory abilities; thorough clinical trial data mgmt knowledge; excellent problem solving skills; ability to effectively organize & manage multiple assignments w/ hard deadlines; & ability to work as multi-disciplinary project team member. Send resume to: Gene Liu, PPD Development, 3900 North Paramount Parkway, Morrisville, NC 27560, or by fax: (919) 462-4140.

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1. Openings for Programmer/Analyst, Computer Support Specialist, Systems Analyst, Database Administrator or Computer Engineer: Design, develop and test computer programs for business applications using TCP/IP, Java, C++, VB, ASP, Unix, Oracle, SQL Server. Min: BS in Comp. Sci., Comp Engg., or Elec. Engg. (or equiv.) and 1 yr exp.

2. Openings for Senior Programmer/Analyst Database Design Analyst, User Support Analyst Supervisor, Specialist, Database Administrator, or Computer Engineer: Analysis, design, and development of computer programs for business applications using TCP/IP, Java, C++, VC++, VB, ASP, Unix, Oracle, SOL server and Com/Dcom. Min: MS in Comp. Sci., Comp. Engg., Elec. Engg., (or equiv.); or BS in Comp. Science, Comp. Engg., or Elec. Engg. (or equiv.) and 5 yr exp. Resume: HR Dept., Horizon Companies, Inc., 2025 Lincoln Hwy., Suite 322, Edison, NJ 08817.

Software Engineer for Alabama based company. Must have a Bachelor's degree in Comp. Science, Engg. (any field) and two years of exp. in Computer Software developing and/or consulting. Respond to: HR Dept., Electronic Healthcare Systems, Inc., 100 Brookwood Place, Suite 410 Birmingham, AL 35209. (Ref. 7429IM).

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iMS Inc. (CT) seeks a Java Software Engineer. Must have development and interface experience with Documentum and Domino Doc plus working development knowledge of JDBC and Oracle. A MS in Computer Science or equivalent is required. Compensation is based on the candidate experience. Send resume to IMS, Inc. 282 Quarry Road, Milford, CT 06460.

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Technical Consultant
Provide technical consultation on sources of products; conduct market research on advanced computer technology and equipment both in China and US; adjust the value of different technology and equipment; provide the management with marketing proposal based on market research. Req. M.S. in CS or EE, fluent in Mandarin Chinese, have good knowledge of advanced computer technology & equipment as well as computer market in China. 40hrs/wk, 9 - 6, 45k/yr, job location is in Miami, FL, send resume to Agency for workforce Innovation P.O. box 10869, Tallahassee, FL 32302, Job Order #FL 2167690.

Oracle Developer: Development and customization of forms and reports in AR, AP and GL Modules in Oracle Financial. Will use Developer/2000, Oracle 7.3 and 8i and Oracle Financials 11i, Oracle Reports 2.5 and SQL*Loader. Will program in PL/SOL, SQL* Plus, Pro*C, C and FoxPro. Requires: B.S. or equivalent in Computer Science, MIS, Engineering or other quantitative field. Must have 5 years progressively responsible experience in Oracle development. 40hrs/wk (8-5); $68,000.00/yr. Send two resumes/responses to: Case Number 20010590, Labor Exchange Office, 19 Staniford Street, 1st Floor, Boston, MA 02114.

SOFTWARE CONFIGURATION MANAGEMENT ANALYST. Must have a Master's degree or equivalent in Electronics Eng. or Comp. Sci. plus 3 yrs in job offered or 3 yrs experience as a Programmer, Analyst, or related; or Bachelor's degree in Electronics Eng. or Comp. Sci. plus 5 yrs experience as a Programmer, Analyst, or related. Send resumes to: Employment Serv., DTCC, 55 Water St., 27th Floor, NY, NY 10041. Refer to Job #EMP8554.

Programmer/Analyst: Create enterprise applications/tools to support various clients to facilitate automation using Rational Rose, Java/Object Oriented concepts, EJB, JSP, VB, Java/VB script, ASP, HTML and UML methodologies. Req. B.S. in C.S. EE, Mathematics, or other related engineering field plus 1 yr. exp. in job offered. Resume to: HR Manager, Omnisoft, Inc., 1265 Compass Pointe Crossing Alpharetta, GA 30005.

Programmer Analyst for web dvlpmt corp in Boca Raton, FL. Must have 2-3 yrs exp in comp field. Mail resume to Attn: Gary Youngman, 1650 South Dixie Highway-#100 Boca Raton, FL 33432.

SENIOR PROGRAMMER ANALYST. Must have a Master's degree in Business Administration, Computer Information Systems, or related field, plus 2 years in job offered or 2 years experience in Software Engineering or related field. Send resume to: HR Dept., GSCC, 55 Water Street, 31st Floor, NY, NY 10041. Refer to Job #EMP1085.

DataBase Administrator needed by Software Consulting Co. in NY to dsgn, implmt & administer d/base using Oracle, SOL, PL/SOL, Unix Shell Scripts using awk, ERWin, SOL Loader in VMS, HP-UX, AIX & SunOS envrmt. MS/BS in Comp Sci/ Comp Engg reqd. Exp'd candidates only. Respond to Saliya Kalansuriya, Avenir, Inc, 1 World Trade Ctr, Ste 7867, NY, NY 10048.

Programmer/Analyst. Location: Birmingham, AL. Duties: Plan, develop, test & document computer programs, applying knowledge of programming technologies & computer systems. Estimate cost & length of projects, developing schedules & setting deadlines. Track development milestones to ensure timely completion of projects. Programming languages used will include Active ServerPages, VBScript, Dynamic HTML, JavaScript, ActionScript & Microsoft Visual Basic. Requires: B.S. in Engineering or Computer Science. EOE. 40 hrs./wk. Send resume (no calls) to: Dan Roberts, Roberts International, 4233 Caldwell Mill Rd, Birmingham, AL 35243

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Computer Programmer-Participate in the whole life cycle of web site development, maintenance of live sites & development of web application tools using Java, JSP, ASP, XML, O.S. UNIX, LINUX, Window NT languages. F/T. Must have a Bachelor's degree in software engineering & 2 yrs. exp. Send resume to Charles Gorder, President, Obj.X., Inc., 630 9th Avenue, New York, NY 10036.

Software Engineers wanted by consulting company in Manhattan, NY. Must have Master in Comp Science, applied computer technology or related fields. Minimum 2 years programming experience in C, C++, Java on Sun Unix or Windows NT platform. Knowledge in Unix, Relational Database, OOP is reqd. WebLogic, Websphere knowledge or experience with J2EE is a plus. Please send resume to HR Dept. Boyle Software Inc. 42 West 24th St. NY 10010. Fax 212-647-7175.

Senior Advisor, Info. Mgmt. sought by pharmaceutical research & development company in Princeton, NJ. Must have a Master of Science Degree in Business Administration, Industrial Administration or related field and 5 years of experience in IT management. Knowledge of finance and project management in IT environment as well as SAP requisitioning and expense reporting capabilities required. Send resumes to Laura Valentino, Human Resources, Bristol Myers Squibb Co., 311 Pennington Rocky Hill Road, Princeton, NJ 08543.

Programmer/Analyst – Greenville, SC

Cobol, Delphi, Oracle 7.1, PL/SQL, Report Writer, IBM AS/400, PC, RS 6000, Unix, Windows. $23/Hr & benefits; BS/BA & 2 years exp. in job offered. Mail resume to Kevin Davidson, OS Technologies, Inc., 7 N. Laurens St., Suite 1106 Greenville, SC 29601 or Fax: 864 370 2230.

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Senior Account Executive

Responsible for managing complex outsourcing program with multiple public agencies, including program growth and budgets. Must be able to interface with public agencies and subcontractors. Ability to market new technology, participate in preparation of technical IT solutions and present proposals on new business. Lead strategic planning activities. Requires a degree in marketing with an IT background preferred. Should have knowledge of public sector, as well as excellent written and oral communication skills. *Position #: AD3/C2WD/119/021920*

Technical Support Manager

Designs and builds an efficient and cost-effective technical server/network as well as administers and maintains a 7X24 mission-critical environment. This position is managerial and involves technical work directing the activities of a technical staff. Requires a Bachelor's degree with a concentration in management information systems, computer science, or closely related field; 6 years experience in server administration, database administration, network administration; or any equivalent combination of education and experience (three years must be current management experience). Strong background with open systems standards and Microsoft Windows Server operating system is also desired. Experience administering large scale environment using OS2200, MCP, VM, OS390, NT, or Unix operating systems essential. Third party software products and vendor knowledge desired. *Position #: AD3/C2WD/119/022223*

Systems Analyst

Demonstrated knowledge and experience at a senior level in development, documentation and implementation of large operating systems, network, communications, and disaster recovery systems with emphasis on 2200 Series; A Series knowledge helpful; ability to assume responsibility for single or multiple operating systems; project development and management; monitor, advise, and adjust daily activities to support the user community at all times; ability to recommend install and maintain software products and new releases of system programs, make changes to existing programs to add new features or functions; collaborate on development of standards and procedures. Requires degree in computer science, engineering, MIS or closely related field; four years technical support experience in large systems environment or equivalent education/experience; requires excellent communication and teaming skills. *Position #: AD3/C2WD/119/105264*

Data Center Supervisor • 2nd or 3rd Shift

Plan, coordinate, evaluate work of staff; responsible for problem/change management for procedures and control mechanisms, QA and security. Responsible for additional activities focusing on tech support of production and development systems and batch data processing services for Unisys A-Series/2200 mainframes, as well as NT servers. 5 years experience with large scale systems operation; familiarity with Enterprise Management Systems used to provide data center automation and control desirable; good communication/interpersonal skills with ability to motivate and resolve conflict; in-depth experience with Unisys A-Series or 2200 large scale systems, along with prior supervisory experience a plus. *Position #: AD3/C2WD/119/104296*

Computer Operator • All Shifts

Conduct console procedures to operate 2200/A Series or Clearpath computers in a 7x24/365 consolidated data center to meet high service delivery requirements for public sector client. Thorough knowledge of console operations of various computer systems; requires initiative and ability to work in a team environment; must be client dedicated. *Position #: AD3/C2WD/119/104637*

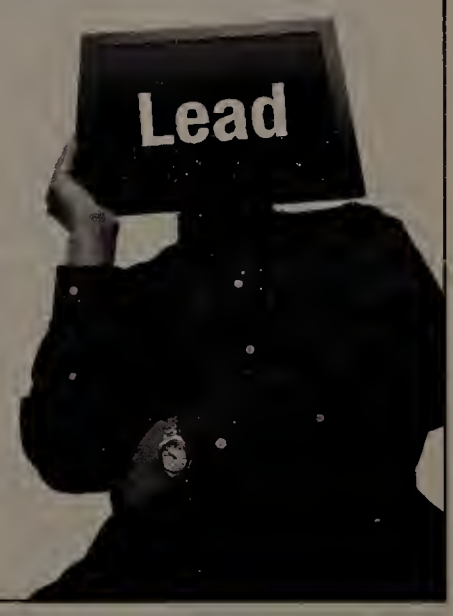
3rd party Software Administrator

Day-to-day support of third party software administration project. Extensive knowledge of third party applications/systems software and vendors; contract administration experience; Unisys and IBM platform background desired; excellent computer skills required; must be team centered. *Position #: AD3/C2WD/119/105265*

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A/S 400 analysts. Analyze requirements, identify problems, automate and improve systems. Analyze input/output to incorporate programs. Write description of user needs, program functions and modify programs. Review program capabilities and propose modifications. Tools, AS/400, RPG IV, Oracle and SQL Server. BS in Computer Science/Engineering and 2yr. exp. Send resume to R. Portes, The phoenix Co. 2000 Kennedy Ave, #210, San Juan PR 00920

LAN Administrator sought by computer s/w consultancy firm in Old Bridge, New Jersey. Must have Bach or equiv and one yr relevant exp. Respond to: HR Dept., Global B2B Concepts, 52 Mountbatten Drive, Old Bridge, NJ 08859.

System Administrator--for electronic commerce integration co. in NYC-- Configure/maintain Sun Solaris/Windows NT productions servers; B.S./ equiv. in comp. sci., math, physics, or rel. field + 2 yrs exp. req. Apply to M. Roddy, Communicator, Inc., 67 Wall St, NY, NY 10005

Programmer Analyst sought by software co in Manhattan. Must possess Bach degree in comp sci./Comp Eng or Math & 2 yrs development experience. Send resume to Prolifics, 116 John St, 20th fl, New York, NY 10038, attn: Sue Allard.

An IT co seeks: 1. Chief Tech. Officer -- Req: B.S. in Comp Sci or engg + 5 yr. exp. in research, design, dvlpg, support advanced Web operating system 2. Director, System Dvlpg - Req: M.S. in Comp Sci or engg + 2 yr. exp in design, program, develop system server. Send resume to Hotlens.com Inc. 350 5th Ave. #3113, NY, NY 10118. EOE.

Project Manager (Software Engineer)

International Telecommunications Software company has an opening for a Project Manager (Software Engineer) to coordinate and supervise development, implementation and integration of company's proprietary software with client networking and communications systems. Must have experience using C++, Java and NT. If interested, forward resume to: Maura Rodenhiser, HR Manager, Elron Telesoft, Inc., 7 New England Executive Park, 10th Floor, Burlington, MA 01803 or e-mail to petes@elrontelesoft.com

WEB DEVELOPER wanted by a Web Software Co in NJ. Dev, support & design internet and intranet related sites & software; support & maintain existing sites. BS in Comp Sci & 1yr exp in job offered req. Respond to: WWW Communications/HR Dept, 2428 Rte 38, Ste 101, Cherry Hill, NJ 08002.

Software Engineer (Melrose Park, PA) Designs & develops Internet-based systems using Oracle 7x, 8.05, BRIO 5.56, Business Object 4.16, Oracle Financial 10.7, Brio Javascript, SAP R/3 module, HTML Informatica. Fax resume 215-782-2083.

PROJECT LEADER - Lead team of computer professionals to design and develop web-based applications. Responsible for guiding technical subordinates in developing and programming the most complex system modules using C++ and client/server architecture. Must have one (1) year experience - Masters in Computer Science or Computer Engineering - 40 hrs. /wk. From 9:00 a.m. to 6:00 p.m. – Salary $74,000/yr. and $37/hr overtime. Contact HR Dept., Silverline Technologies, Inc., Silverline Corporate Plaza, 53 Knightsbridge Road, Piscataway, NJ 08854. Tel No. (732)457-0200.

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E-Business Sr. Consultant. Duties: Resp. for the develop. & implem. of web-based info techs., customizations & business processes for retail solutions related projects. Design, develop, implement & support info tecch. arch. & systems using Windows NT, UNIX & AS 400. Design, develop & implement intranet/extranet infrasturcutures in a multi-vendor environ. tech. using Lotus Notes/ Domino, Netscape & Microsoft platforms with integration to relational database. Create & implement database infrastructure environs., develop table structures, data modeling & database prog. using Cold Fusion & IBM NetData for Web-to-Oracle initiatives & extranet sites. Design, develop, implement & support e-commerce websites using WebSphere, e-commerce Suite with Domino integration & other web application develop. tools. Requires: B.S. (or foreign equiv.) in Comp. Sci., Info Systems, Eng. or related field and 5 yrs. exp. in the job offered or 5 yrs. exp. as a Tech Mgr. or Consultant. Exp., which may have been obtained concurrently, must incl.: 5 yrs. exp. designing, developing & implementing intranet/extranet infrastructures in a multi-vendor environ., 5 yrs. exp. using Lotus Notes/Domino & 3 yrs. exp. designing, developing & implementing e-commerce websites. EOE. 40 hrs./wk.; 8:00 a.m. to 5:00 p.m. Salary: $90,500/yr. Send resume (no calls) to: Dimitry Petion, CDI-Netsource, Inc., 200 Cordwainer Dr., Ste. 107, Norwell, MA 02061

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in C++, Java, JavaScript and Oracle. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and five years experience as a software engineer or computer programmer, knowledge of C++, Java, JavaScript and Oracle. Salary: $124,800/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Ms. Sue Notarnicola, Fayette County Team PA CareerLink 32 Iowa Street, Uniontown, PA 15401-3513, Job No. WEB165298.

COMPUTER/IT

Applications Architect-Req. a Masters degree in computer science, computer engineering, or info. sciences & 2 yrs' exp. in job offered or 2 yrs'. experience in architecture, development, & implementation of n-Tier applications. In lieu of Master's & 2 yrs/ experience, will accept Bachelor's in specified field & 5 yrs. of progressive, post-baccalaureate experience as stated. (Will also accept foreign educ. deemed equiv. to U.S. bachelor's degree). All of exp. must involve use of object-oriented methodologies in component based coding environments & use of VB, C++ and SOL. At least 2 yrs. of stated experience must also incl. use of Visual InterDev/ASP; Powerbuilder, NVision or Crystal Reports; ErWin; a CASE tool, & relational database administration or development in a UNIX or Windows environment for Oracle or SOL Servers. (Experience may, but not, be concurrent) Lead multiple projects involving the architecture, development, and implementation of n-Tier applications using object oriented methodologies in component based coding environments. Analyze and model databases, design implement and support custom & packaged softwares using Visual Basic (VB), C++, Powerbuilder, SQL, and Visual InterDev/ASP. Provide mentoring and technical guidance for relational database design, definition, and administration activities for Oracle/SQL Servers in a UNIX or Windows environment. Develop Services related application framework and ensure problem resolution & technical viability, inc. recommending using tools such as ErWin, Nvision, and Crystal Reports to best meet application. needs 40 hrs./wk. Salary range $75,000-90,000/yr. Job located in Atlanta, GA. Send resume to James Hebb Turner Broad. System, One CNN Center, Atlanta, GA 30348. No calls please.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in ASP, Oracle and Visual Basic. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of ASP, Oracle and Visual Basic. Salary: $76,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Ms. Mary Pat Curran, McKeesport/ Allegheny Co. CareerLink, 345 Fifth Ave., McKeesport, PA 15132-2600, Job No. WEB168057.

DATABASE ADMINISTRATOR

Database Administrator to do logical and physical design of Oracle database; Code test and implement Oracle scripts applying knowledge of Database Management Systems; Calculate optimum values for Oracle database parameters; performance tune Oracle databases; Model Oracle database security; manage backup and recovery of Oracle databases; make changes to Oracle database applications using expertise in Oracle database administration which includes logical design, physical design, performance tuning, backup and recovery, coding of scripts, knowledge of Oracle 7.3, SQL *DBA, Pro *C (tools) and PL/ SOL (Language). Requirements: Bachelor's Degree in Computer Science or related field and two years experience as a Database Administrator expertise in Oracle database administration which includes logical design, physical design, performance tuning, backup and recovery, coding of scripts, knowledge of Oracle 7.3, SOL *DBA, Pro *C (tools) and PL/SOL (Language). Salary: $65,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and relocation. Apply: Mr. James J. Mackin, Beaver Falls Job Center/TPCL, 2103 Ninth Ave., Beaver Falls, PA 15010-3957, Job No. WEB168302.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Visual Basic, Com, ASP and Active X. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of Visual Basic, Com, ASP and Active X. Salary: $66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Ms. Sue Notarnicola, Fayette County Team PA Careerlink, 32 Iowa Street, Uniontown, PA 15401-3513, Job No. WEB167994.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Java, JavaScript, Oracle and C++. Requirements: Bachelor's Degree or equivalent in Computer Science or related field and one year of experience as a software engineer or computer programmer, knowledge of Java, JavaScript, Oracle and C++. Salary: $66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/week, involves extensive travel and frequent relocation. Apply: Mr. Thomas Dembosky, Indiana Job Center, 350 N. Fourth Street, Indiana, PA 15701-2000, Job No. WEB 168059.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in Visual Basic 5.0, Oracle 7.0 and Crystal Reports. Requirements: Bachelor's Degree, educational equivalent or functional equivalent in Computer Science or related field and five years experience as a software engineer or computer programmer, knowledge of Visual Basic 5.0, Oracle 7.0 and Crystal Reports. Salary: $68,000/ year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/ week, involves extensive travel and frequent relocation. Apply: Mr. Joseph Stratico, Pittsburgh/ Allegheny Co. CareerLink, 425 Sixth Ave., Suite 2200, Pittsburgh, PA 15219, Job No. WEB168285.

SOFTWARE ENGINEER

Software engineer to design, develop and test computer programs for business applications; analyze software requirements to determine feasibility of design; direct software system testing procedures using expertise in TCP/IP, Windows NT and LDAP. Requirements: Bachelor's Degree, educational equivalent or functional equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer, knowledge of TCP/IP, Windows NT and LDAP. Salary: $66,000/year. Working Conditions: 8:00 A.M. to 5:00 P.M., 40 hours/ week, involves extensive travel and frequent relocation. Apply: Mr. Terrance Kinney, Armstrong County Team PA CareerLink, 1270 North Water Street, PO Box 759, Kittanning, PA 16201-0759, Job No. WEB168247.

Analyst Programmers

eOnline, Inc. delivers leading enterprise business applications in a managed hosted, environment to provide end-to-end eBusiness solutions. We have an opening for Analyst Programmers. We offer exceptionally competitive salaries and benefits. Please send your resumes to Human Resources, attn: Human Resources IM1, eOnline, Inc. 20400 Stevens Creek Blvd., Suite 200, Cupertino, Ca 95014. Or email to ssingh@eonlineinc.com and refer to ad IM1

Engineer

Software Engineer/Technical Software Support Manager [multiple openings]: Working independently, provide technical assistance to clients and users for company relational database management systems and tools products. Lead a team of technical support engineers in providing technical support for installation and setup, system administration, product configuration and functionality. Provide guidance in solving technical problems across a variety of products and technologies. Positions require BS/BA in CS, Engineering, Computation/Mathematics, History or related field or foreign equivalent and 5 years as a technical support manager or 5 years of software engineering experience. Experience must include 1) management, 2) technical customer service, 3) RDBMS, and 4) client/server. $77,600 per year. Job site: Denver, CO. Application is by resume only. Send resume to Colorado Department of Labor and Employment, Employment Programs, Attn: Jim Shimada, Two Park Central, Suite 400, 1515 Arapahoe Street, Denver, CO 80202-2117, and refer to order number JL1118446.

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Ingersoll-Rand Offers Procurement Service

Manufacturer sells in-house supply chain expertise to other Fortune 1,000 companies

BY MARC L. SONGINI

MANUFACTURING giant Ingersoll-Rand Co. thinks it can succeed where most businesses fail: in linking mom-and-pop suppliers to large online supply chain procurement systems.

The Woodcliff Lake, N.J.-based firm is internally beta-testing a service called The 21st Supplier from a new business unit with the same name. The service for Fortune 1,000 firms will take on the headaches of tying small suppliers to a company's back-end inventory, planning and logistics systems, said Bill Lindquist, business unit leader at the Torrington, Conn.-based start-up.

Analysts say this is an interesting, innovative and potentially trendsetting move, despite the general slowdown in investment in electronic business systems.

"Procurement is ripe for outsourcing," said Karen Peterson, an analyst at Stamford Conn.-based Gartner Inc. But, she added, although Ingersoll-Rand is "ahead of the curve" here, "it lacks a track record and will probably only succeed serving industries it's already doing business in."

Ingersoll-Rand is an $8 billion firm with 100 factories and $4 billion per year in direct materials procurement. It has built the direct materials procurement system based on its own experience, with software from Bedford, Mass.-based SupplyWorks Inc., to draw in a viable new revenue stream, said Lindquist. Via a browser, suppliers can synchronize their processes to their customers' planning and procurement cycles.

Lindquist claimed that 21st Supplier will be able to shave off a significant piece of the 20% to 30% in administrative and other costs incurred when making purchases. And instead of many invoices, customers will be able to pay just one to 21st Supplier.

The timing is right for this sort of supply chain project, said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Daly City, Calif. But it will be hampered if it doesn't give the suppliers any tools to manage their own back-end processes, and that could make it "a complex and expensive project."

AT A GLANCE

Tying It Together

Ingersoll-Rand's 21st Supplier service will handle the following:

- Supply chain and logistics planning
- Procurement collaboration
- Execution and sourcing processes

Nevertheless, Lindquist said, The 21st Supplier is in advanced negotiations with a few potential clients he declined to name.

But it will still be a tough sell to many companies, such as frozen food maker Anchor Food Products Inc. in Appleton, Wis. It recently went live with a homegrown Web system that lets its suppliers check on production schedules and manufacturing updates from its J.D. Edwards & Co. enterprise resource planning application.

Anchor expects to save up to $5 million this year in inventory reductions, said Craig Elonen, an analyst systems manager at the company. If Anchor outsourced the procurement, it would lose the relationship it has developed with suppliers, Elonen added.

Down the line, it "could get into finger-pointing [between the outsourcing company and the suppliers] if something went wrong," Elonen said. ◗

Continued from page 1

Ariba

procurement software is extremely diverse: Ariba holds an 18% market share in a space with more than 90 vendors, according to Framingham, Mass.-based research firm IDC, and many users have already committed large sums of money to disparate technology paths.

"What I want to know is, Will the major vendors be able to put aside their egos and do something that's good for the market?" said Melissa Spangler, director of e-marketplaces at Ariba customer FleetBoston Financial Corp.

The auto sector is one industry that's already largely committed. Ford Motor Co. and General Motors Corp. bought 14.4 million shares each in Ariba rival Commerce One Inc. in January as part of the equity structure of Covisint LLC, the massive automotive exchange founded by the Big Three automakers. Southfield, Mich.-based Covisint picked Oracle Corp. and Pleasanton, Calif.-based Commerce One as its lead technology providers.

However, Ariba claims Volkswagen AG, Bayerische Motoren Werke AG and Honda Motor Co. among its customers, as well as Toledo, Ohio-based Dana Corp., the largest supplier of drive shafts and piston rings.

Mueller argued that the Big Three seem more interested in operating Covisint "as a manipulated puppet." He said he believes that they will drop their support of the exchange if they see competitors getting better value with other models.

"I think ultimately, GM will use technology to do their own thing, and Ford will use Oracle to do their own thing, and they'll go their separate ways," Mueller said.

Covisint spokesman Dan Jankowski said the perception that the marketplace has stalled is incorrect. He said Covisint has been building an infrastructure "that can serve an incredibly large industry," and it hopes to be operational before the end of the year.

No Clear Winners

In the pharmaceutical industry, Ariba has captured several high-profile customers, including Merck & Co., Bristol-Myers Squibb Co. and Pfizer Inc.

But some players have gone elsewhere. GlaxoSmithKline PLC in London decided to throw its business to FreeMarkets Inc. because of the premerger relationship SmithKline Beecham had with Pittsburgh-based FreeMarkets, dating to 1999. In January of last year, Eli Lilly and Co. in Indianapolis chose Commerce One to automate the purchasing of goods and services throughout the company.

"What this means is you're going to see some real fights for dominance in those areas, and the winners will set the standards," said Hari Srinivasan, an analyst at Banc of America Securities LLC in San Francisco. Srinivasan added that it will likely leave customers searching for the best of breed in a dogfight with no clear winners.

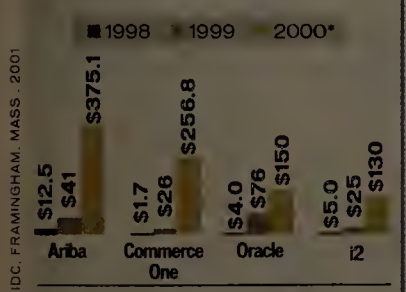
Mueller, who last week replaced Chairman Keith Krach as CEO, said Ariba will be offering better business-to-business network connectors and extensions to help link trading partners in the coming months.

Ariba is coming off a quarter in which it lost $48.3 million from operations. Revenue came in well below expectations, at $90.7 million. ◗

Linda Rosencrance contributed to this report.

In the Lead

Ariba leads in worldwide license revenue for online procurement applications (in millions)



Note: Total market revenue was $174 million in 1998, $770 million in 1999 and $2.05 billion in 2000.
*Estimated

SOURCE: IDC, FRAMINGHAM, MASS., 2001

i2 Joins Ariba in Naming New CEO

i2 Technologies Inc. last week announced that Greg Brady, the company's president, will take over the CEO spot from co-founder Sanjiv Sidhu.

The management change at Dallas-based i2 came just two days after rival Ariba Inc. tapped Larry Mueller, its president and chief operating officer, to replace former CEO Keith Krach. Like other business-to-business vendors, i2 and Mountain View, Calif.-based Ariba are being hit by lower-than-expected sales that have forced them to resort to layoffs.

i2 said last month that it was planning to cut more than 600 workers after its first-quarter profits came in at a level nearly 50% below that of one year earlier. Ariba said 700 of its 2,100 employees would be let go following a $1.84 billion net loss in its fiscal second quarter and the demise of a planned acquisition of San Jose-based Agile Software Corp.

Brady, 40, has served as president of i2 since 1994. Sidhu will stay on as chairman and provide "ongoing direction and vision for the company," according to a release from i2.

– Todd R. Weiss

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FRANK HAYES/FRANKLY SPEAKING

Privacy? Bank on It

REMEMBER THE Y2K SERMON? Back in 1999, the American Bankers Association wrote a sermon for preachers to deliver, telling the people in the pews not to panic over Y2k and to trust their bankers. (As bad ideas go, this one was a lulu — I never found one minister who even thought a sermon written by bankers was a good idea, much less one willing to deliver it.)

Now a lobbying group backed by the ABA is claiming that data privacy will cost bank customers billions of dollars and hundreds of millions of hours of wasted time every year. This time, the bankers didn't try to turn preachers into their mouthpieces. Instead, the Financial Services Coordinating Council sponsored a study by banker-friendly Ernst & Young LLP.

The study's breathless conclusion? Based on responses from 90 large financial-services organizations, Ernst & Young says it will cost U.S. customers at least $16 billion and 305 million hours per year if the law requires customers to opt in for data sharing and if less than 10% agree to opt in.

Did you spot the jokers in this deck? Let's put it another way: If more than 90% of Americans think banks sharing their confidential data is a lousy idea, it will cost them each 12 seconds and 17 cents a day to do without it.

That's the price of privacy at the bank: less than 20 cents a day. Not a very compelling argument to agree to data sharing, eh?

If you think this is just a problem for bankers, think again. Yes, new data privacy regulations for U.S. banks kick in July 1. But the clock is ticking for the rest of us, too. Sooner or later, we *will* have to deal with tighter privacy regulations, whether because of proposed federal or state laws or European requirements for dealing with customers across the water.

And we (or rather, our companies' marketing departments) will never persuade customers to share their data just to save pennies a day. We'll have to promise a lot more — and every marketing promise means lots of work for IT.

Security, for example: Our companies will have to convince customers that their personal data will be safe, whether they opt in or out. That means safe from unauthorized use, but also safe from crackers and catastrophes.

For IT, that means security holes have to be closed immediately and software patches must be applied pronto. But it also means tightening up data access policies that have been getting looser ever since our first departmental and client/server systems were plugged in.

And flexibility: We'll have to let customers choose how much of their data will be shared. It's a lot easier to sell a little data sharing than a full boat. But in the IT shop, that will require more processing power to constantly filter data and lots of tweaks to enterprise applications to support that customized data handling.

That's the price of privacy at the bank: 17 cents a day.



And customers will have to see real advantages to sharing their data — not pennies or seconds saved, but new products and services that better meet their needs at a lower price. How will that happen exactly? That's for the business guys to dream up. But you can bet IT will have to make it happen, and fast. If we don't make losing privacy worth it for customers, they'll just say no.

Of course, maybe we'll all be a little luckier. Maybe the bankers' guesstimate of 10% opt-in is just a little paranoid. Maybe most of *our* customers will be glad to share their data.

But don't count on it. Faced with everything from spam to identity theft, lots of people are plenty sensitive about privacy these days. So when it comes to data sharing, we probably won't be preaching to the converted. ◗

Hayes, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

SHARK TANK

SALES STAFF at electrical parts distributor knows the buyer has added a new line of fuses but can't bring them up in the system. IT pilot fish discovers why: The buyer has added an asterisk to the front of each of the new fuses' part numbers. "He told me the asterisk is what he uses to bring up 'everything like that' in a search," fish reports. "So if he put the asterisk right in the part numbers, they'd be that much easier to find."

NEW-HIRE PROGRAMMER asks manager pilot fish's help in getting a new program running. "You need a phase name for your program," fish tells the programmer. "About 15 minutes later," says fish, "the accounting department manager, whose name is Faye, wants to know why the programmer needs her name for his program."

REMOTE OFFICE STAFF decides to upgrade its own printer instead of waiting a week for IT to help. "I know how to set up a printer," staffer tells pilot fish. A week later, fish gets a call: They're having "issues with the drivers." The drivers turn out to be OK, but fish finds the problem: "They had somehow forced the ink cartridge in upside down and backwards." She pries it out and inserts it correctly. "What was the problem?" staffer asks. "The cartridges were put in wrong," fish says. "But," staffer exclaims, "those were the ones that came with it!"

AFTER THAT, WHO WILL CARE? Transit agency is about to go live with a financial software upgrade and a shift from VMS to Unix when pilot fish gets word from on high: There will be a disaster recovery test two days before the switch – on the old VMS system. "It took several phone calls before I could get any agreement to postpone the test," fish says.

JUST SAY NO TO TIME SHARING Trucker hits a snag, first trying to make a delivery, then trying to get into the database to check on it. He calls headquarters, and an IT-savvy scheduler tries to help. "Are you using TSO?" he asks. "Listen, buddy," growls the trucker, "I don't do drugs!"

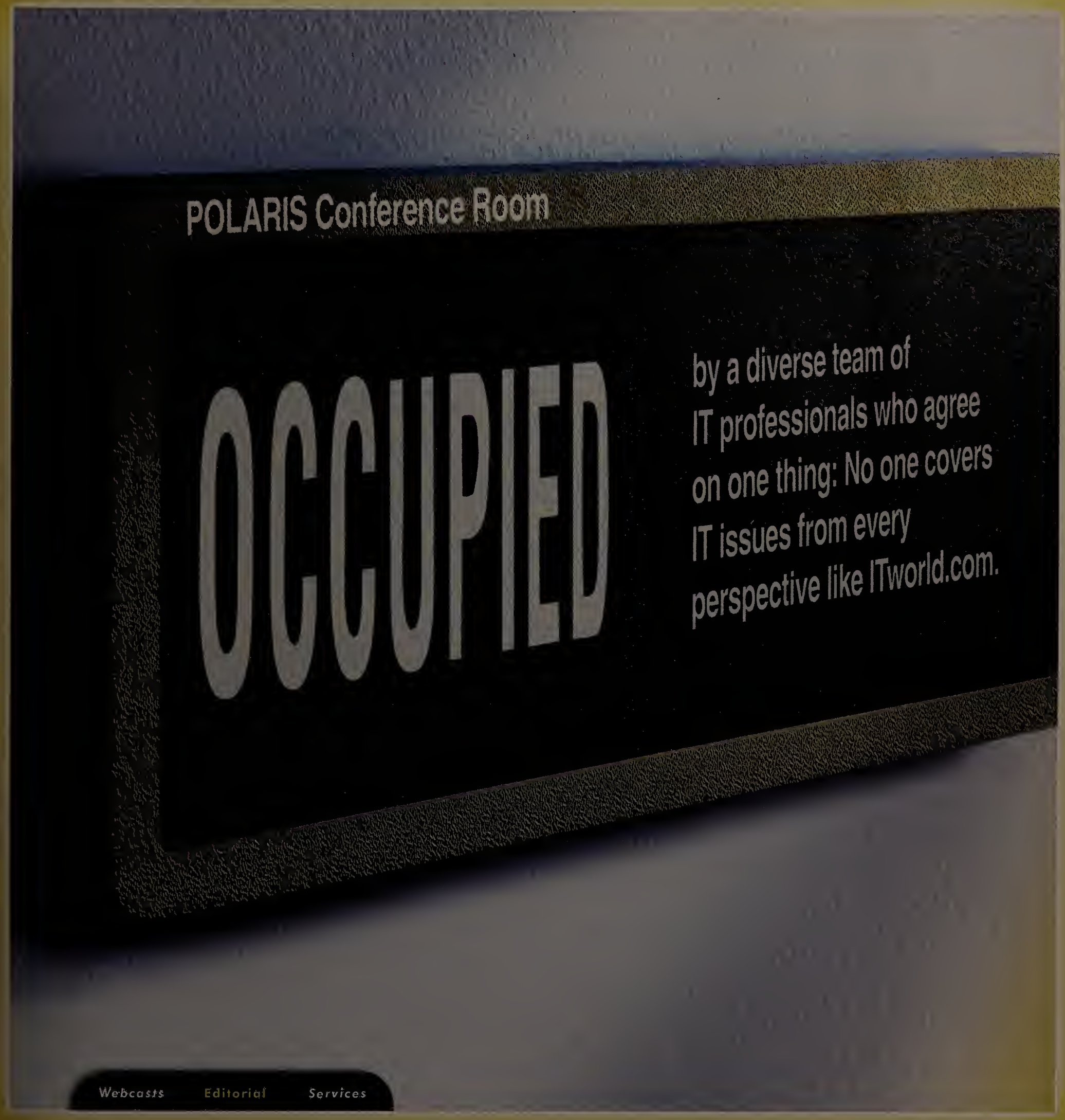
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The 5th Wave



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"Think of our relationship as a version of Red Hat Linux – I will not share a directory on the love-branch of your life."



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